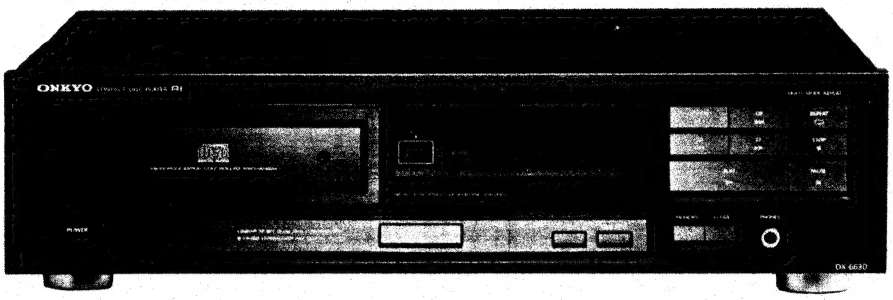
DX-6630

SERIAL NO. 3318

ONKYO® SERVICE MANUAL

COMPACT DISC PLAYER
MODEL DX-6630



Black and Silver models

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SPECIFICATIONS

Signal readout system:	Optical non-contact
Reading rotation:	About 500~200 r.p.m. (constant linear velocity)
Linear velocity:	1.2~1.4m/s
Error correction system:	Cross interleave readsolomon code
Decoded bits:	16 bits linear
Sampling frequency:	352.8kHz (8 times oversampling)
Number of channels:	2 (stereo)
Frequency response:	5Hz~20kHz
Total harmonic distortion:	0.004% (at 1kHz)
Dynamic range:	96dB
Signal to noise ratio:	100dB
Channel separation:	90dB (at 1kHz)
Wow and Flutter:	Below threshold of measurability
Power comsumption:	16 watts
Output level:	2 volts r.m.s.
Dimensions (W x H x D):	435x119x312mm 17-1/8"x4-11/16"x12-1/4"
Weight:	4.7kg, 10.4lbs.

Specifications are subject to change without notice.

ONKYO
AUDIO COMPONENTS

TABLE OF CONTENTS

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMMISION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

Laser Diode Properties

- Material: GaAS/GaAlAs
- Wavelength: 780nm
- Emission Duration: continuous
- Laser output: max. 0.5mW*

*This output is the value measured at a distance about 1.8mm from the objective lens surface on the Optical Pick-up Block.

LASER WARNING LABEL

The label shown below are affixed.

1. **Class 1 label (Except 120V model)**
   This label is located on the back panel.

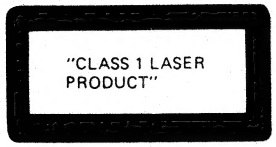


Fig. 3

2. **Warning lable**
   This label is located on the arm of mechanism.

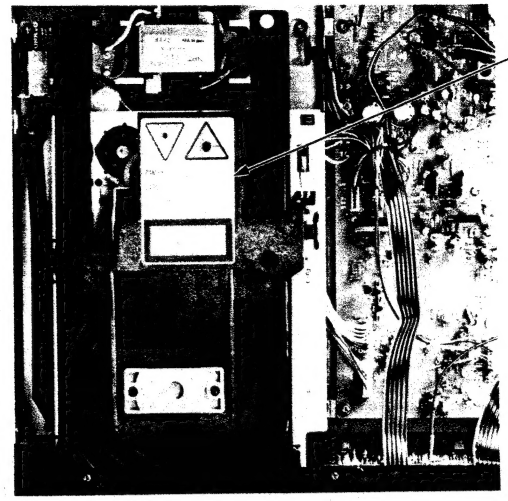
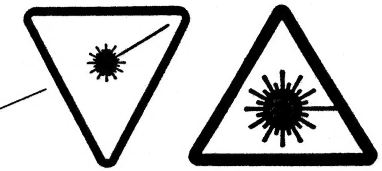


Photo 1



DANGER —INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM

CAUTION —HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED.

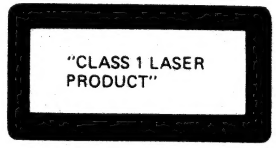
ATTENTION —RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ECLENCHEMENT DE SECURITE ANNULE.

SN29360911

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-BRYDER ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

Fig. 4

ADVARSEL



Denne mærkning er anbragt på apparatets højre side og indikerer, at apparatet arbejder med laserstråler af klasse 1, hvilket betyder, at der anvendes laserstråler af svageste klasse, og at man ikke på apparatets yderside kan blive udsat for utilladelig kraftig stråling.

APPARATET BØR KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselsmærkning, som advarer imod at foretage sadanne indgreb i apparatet, at man kan komme til at udsætte sig for laserstråling.

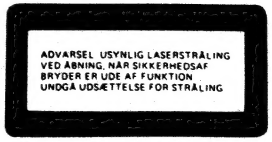


Fig. 5

VAROITUS! Laite sisältää laserdiodin, joka lähettää (näkymätöntä) silmille vaarallista lasersäteilyä.

CAUTION ON REPLACEMENT OF PICKUP

The laser diode in the optical pickup block is so sensitive to static electricity, surge current and etc. that the components are liable to be broken down or its reliability remarkably deteriorated.

During repair, carefulley take the following precautions. (The following precautions are included in the service parts).

PRECAUTIONS

1. **Ground for the work-desk.**
   Place a conductive sheet such as a sheet of copper (with impedance lower than $10^6\,\Omega$) on the work-desk and place the set on the conductive sheet so that the chassis.
2. **Grounding for the test equipment and tools.**
   Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.
3. **Grounding for the human body.**
   Be sure to put on a wrist-strap for grounding whose other end is grounded.
   Be particularly careful when the workers wear synthetic fiber clothes, or air is dry.
4. **Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.**
5. **Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.**

Care should be taken with the optical pickup.
The optical pickup is sensitive to static electricity, surge currents, and other high electrical noise, and because there is the possibility of damage to performance, in the handling of the pickup, the utmost care must be taken, particularly with regard to static electricity.

1. When checking the laser terminal, avoid making connections using the probes of a tester or oscilloscope, or an ordinary power supply.
2. When replacing the optical pickup, first short the LD terminals and remove the connector. Also, when attaching the new optical pickup, after attaching the connector, unsolder the LD terminals.

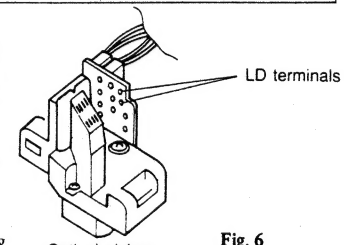


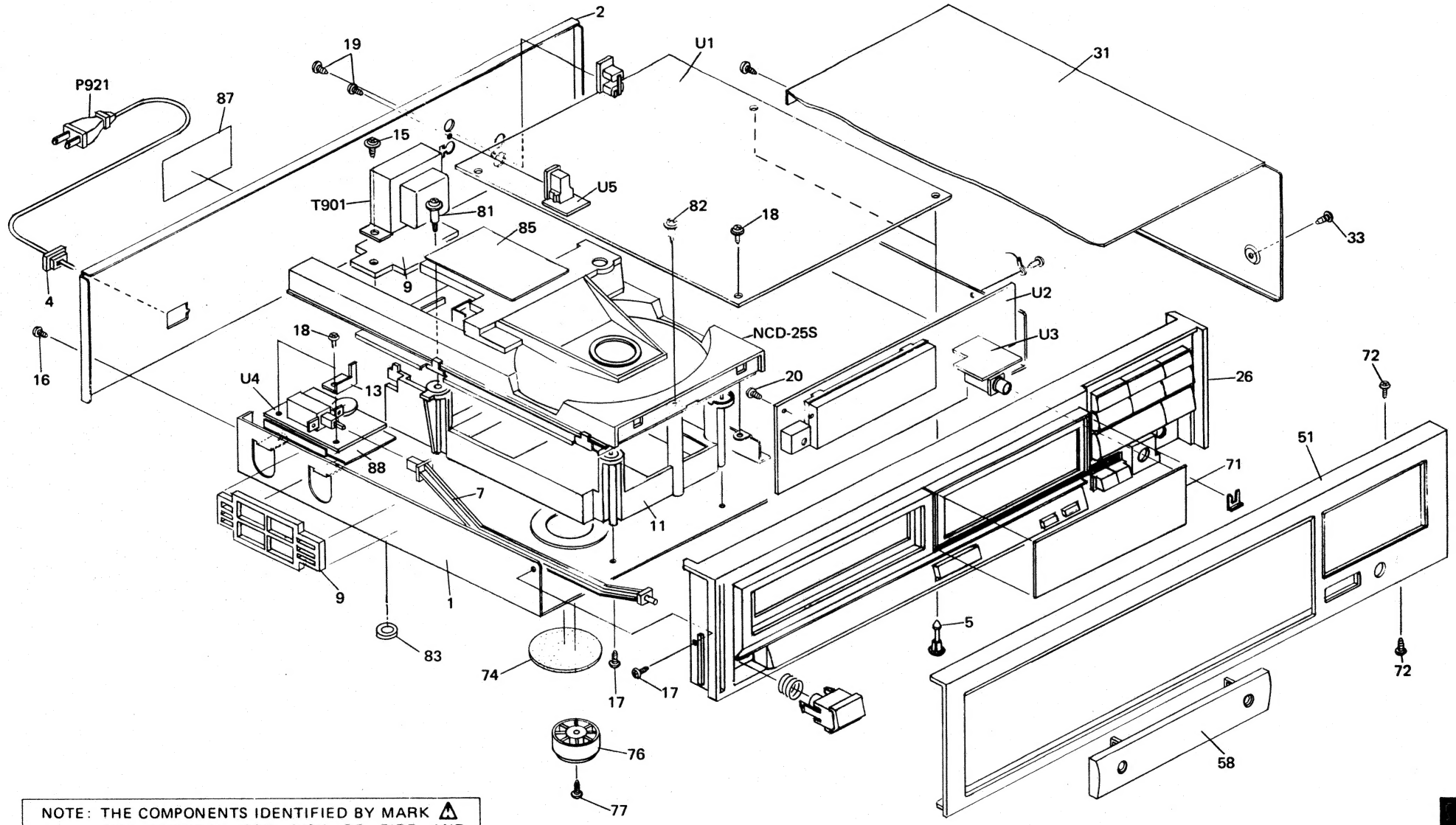
Fig. 6

EXPLODED VIEW-PARTS LIST

NOTE: ⟨B⟩: Only Black Models
⟨S⟩: Only Silver Models

REF.NO.	PART NO.	DESCRIPTION
1	27100190	Chassis
2	27121238-1	Back panel
4	27300750	⚠Bushing, cord (Strainrelief)
5	27190266	KGLS-12R, Holder
6	28140946	Cushion
7	27273112	Joint, power
9	27270214A	Spacer (Main circuit pc board)
11	27190706B	Holder, mechanism
12	28140928	t4×25×25, Cushion
13	27141340	Bracket L
15	830440109	4TTC+10C(BC), Tapping screw
16	834430088	3TTS+8B(BC), Tapping screw
17	833430080	3TTP+8P(BC), Tapping screw
18	831130088	3TTW+8B, Tapping screw
19	834430108	3TTS+10B(BC), Tapping screw
20	833426060	2.6TTP-6P(BC), Tapping screw
26	27110477	Front bracket ass'y ⟨B⟩
	27110477-1	Front bracket ass'y ⟨S⟩
31	28184429	Top cover ⟨B⟩
	28184430	Top cover ⟨S⟩
33	834430088	3TTS+8B(BC), Tapping screw
51	1H079121	Front panel ass'y ⟨B⟩
	1H080121	Front panel ass'y ⟨S⟩
58	27211085-2	Tray panel ⟨B⟩
	27211085-1	Tray panel ⟨S⟩
71	28191512	Clear plate
72	833430080	3TTP+8P(BC), Tapping screw
74	27270255	Spacer
76	27175153	Leg
77	834430088	3TTS+8B(BC), Tapping screw
81	801364	Special screw
82	801414	Special screw
83	27175011C	Leg (Cushion)
85	29360911	Label, caution, laser
87	29360687	Label CLASS 1
88	28175158A	Insulator plate
P921	253148 or 253150	⚠AS-CEE 250V 2.5A, Power supply cord
T901	2300385B	⚠NPT-1015G, Power transformer
U1	1H073542-1A	NAAR-3542-1A, Main circuit pc board ass'y
U2	1H073543-1	NADIS-3543-1, Display circuit pc board ass'y
U3	1H073544-1	NAAF-3544-1, Headphone amplifier pc board ass'y
U4	1H073545-1	NAPS-3545-1, Power supply pc board ass'y
U5	1H073546-1	NAETC-3546-1, Syncro terminal pc board ass'y
L901	230907	TR-16-8-16, Core (2nd side of power transformer)

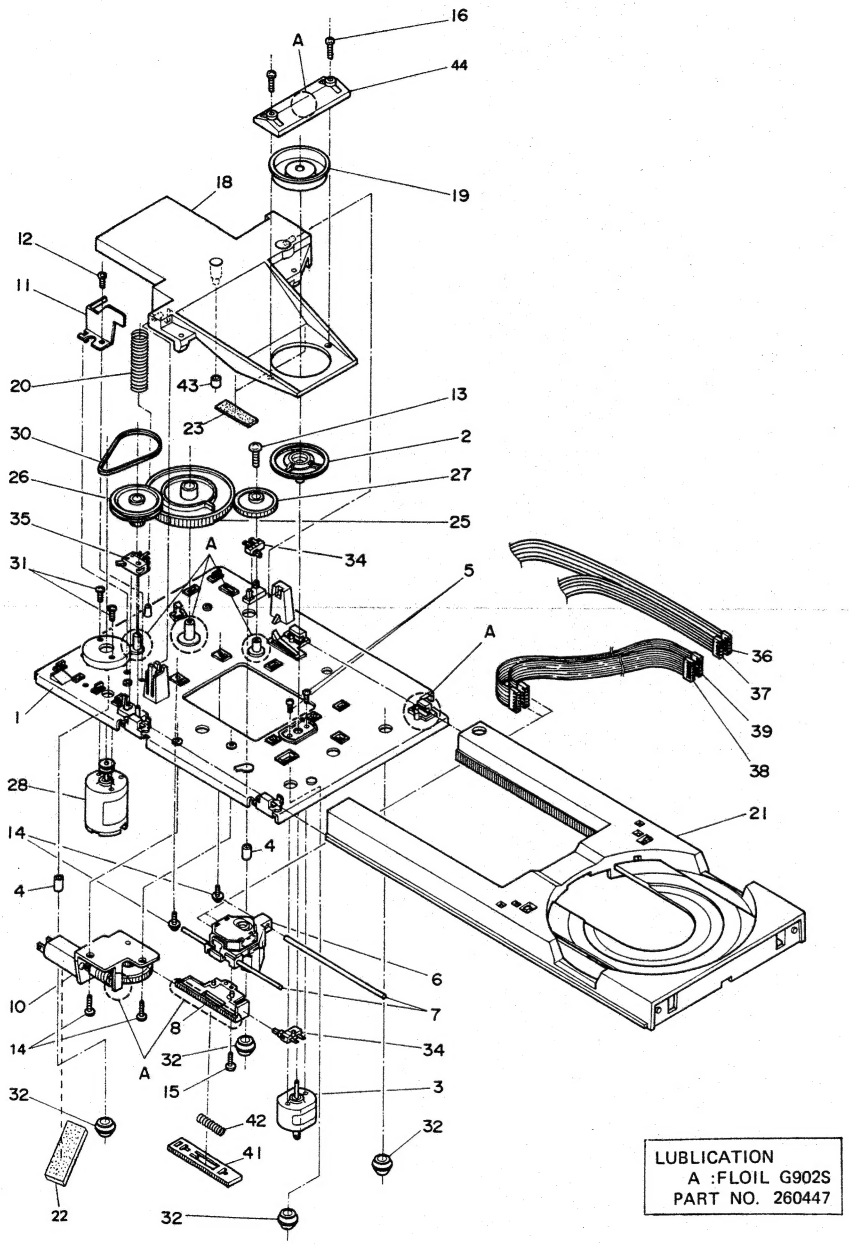
EXPLODED VIEW



NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

Fig. 7

MECHANISM-EXPLODED VIEW



LUBLICATION
A :FLOIL G902S
PART NO. 260447

Fig. 8

PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
1	27100188A	Mechanism chassis
2	27301201	Turntable
3	24502243	Spindle motor
4	28140948	Tube
5	82142003	2P+3F(BC), Pan head screw
6	24110001	KSS-152A, Optical pickup
7	27260222	Shaft
8	27301191	Rack A
10	1H073902	Slide motor ass'y
11	27141230	Bracket, holder
12	834430068	3TTS+6B(BC), Tapping screw
13	831126060	2.6TTW+6P, Tapping screw
14	831430100	3TTW+10P(BC), Tapping screw
15	833420068	2TTP+6P(BC), Tapping screw
16	833426060	2.6TTP+6P(BC), Tapping screw
18	27301190	Arm
19	27300848A	Cap CH
20	27180341A	Spring
21	27301202A	Disc tray ass'y
22	28140941	Cushion
23	28140947	Cushion
25	27300942C	Cam gear
26	27300943	Pulley gear
27	27300944A	Gear
28	1H025901	Tray motor ass'y
30	27301079	Belt
31	82143004	3P+4FN(BC), Pan head screw
32	27301107	Cushion, rubber
34	25065321	NMS-1113, Microswitch (S002/S003)
35	25065322	NMS-1214, Microswitch (S001)
36	2000733B	NSAS-6P689, Socket ass'y, motors
37	2000734B	NSAS-6P690, Socket ass'y, microswitches
38	2000952	NSAS-8P904, Socket ass'y, white
39	2000951	NSAS-8P903, Socket ass'y, red
41	27301192A	Rack B
42	27180426	Spring
43	27301189	Cap, arm
44	27300849C	Holder, cap

DISASSEMBLING PROCEDURES

Method for removing the tray

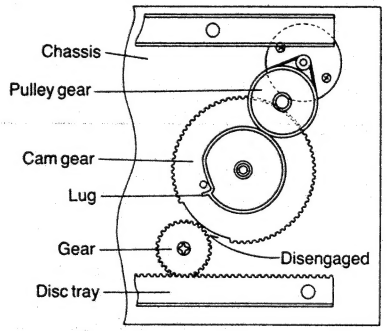


Fig. 9

1. Set the position so that the cam gear and gear are disengaged.
2. Pull the tray to the front.

Method for removing disc motor

1. Remove the tray.
2. Remove the holder, then remove the arm.
3. Remove the 3 screws that fasten the mechanism chassis to the main chassis.
4. Cut the turntable platter with a nipper.
5. Remove the soldering of the disc motor, and remove the 2 fastening screws.
6. When inserting the turntable platter onto the motor shaft, hold the platter at a right angle to the motor shaft and push it onto the shaft until it touches the bottom.

NOTE: Height of turntable platter.
See page 14.

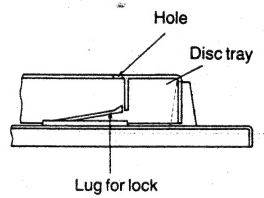


Fig. 10

3. Insert a small flat-bladed screw driver into the hole section of the right side of the back of the tray, and push the lug used for locking the tray to bring the tray to the front.

CAUTION: When inserting the tray, the cam gear and gear parts are not in the meashing position.

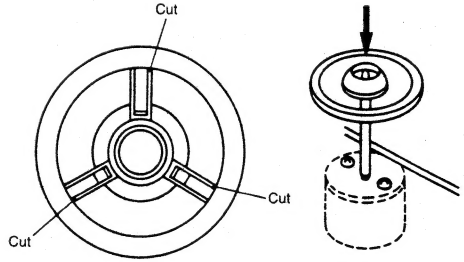


Fig. 11

CIRCUIT DESCRIPTIONS

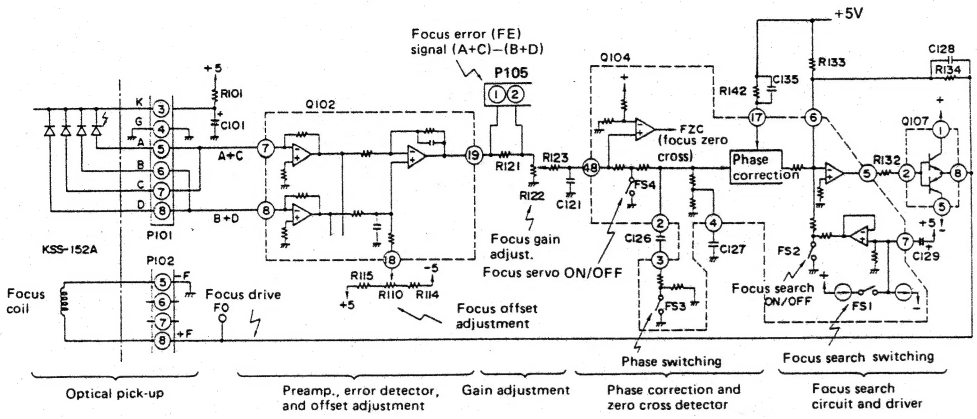


Fig. 12 Focus servo circuit

1. Focus servo circuit

From the optical pickup objective lens, the emitted laser beam is focused on the disc reflecting surface, an this circuit controls the movement of the lens up and down.

1-1. Error detecting circuit

The error is detected by means of the astigmatic aberration method and obtains its focus error signal from the optical pickup output signal (A+C)−(B+D).
The individual signals (A+B) and (C+D) input to pins 7 and 8 of Q102 are subtracted by means of the IC internal op amp, and from pin 19, the F.E. signal is output. Also, in order to eliminate the focus error, offset adjustment is carried out by the semi-fixed resistor R110 of pin 18 of Q102.

1-2. Phase correction and driver circuit

By means of the semi-fixed resistor R122, the gain adjusted F.E. signal passes by way of the phase correction circuit from pin 48 of Q104, and from pin 5 of Q104 to the driver Q107, and is feedback to the coil used for driving the optical pickup KSS-152A objective lens. In addition, there are the FS4 servo ON/OFF switch and FS3 phase characteristic selector switch.

1-3. Focus zero cross circuit and focus search circuit

In order to have mandatory drive of the objective lens in the capture range of only 10μm at the focus point it is necessary to turn off the above mentioned FS4 and close the servo loop. The timing diagram for that operation is shown in Fig.13.
The triangular wave generated by means of the focus search circuit internal to Q104 shifts the objective lens up/down direction, and at the correct focus point, the fall of F.E. signal is detected by the focus zero cross (FZC) circuit to close the servo loop. At this time, it is necessary that the focus OK (FOK) signal be in the high level. In Fig.13, the dotted line is the waveform of the focus capture failure.

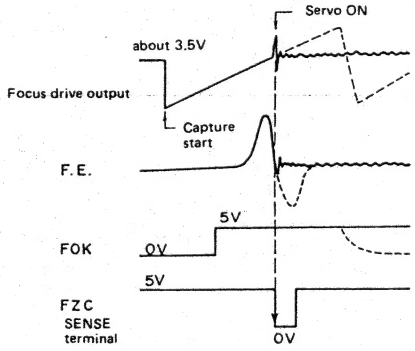


Fig. 13 Capture operation of focus

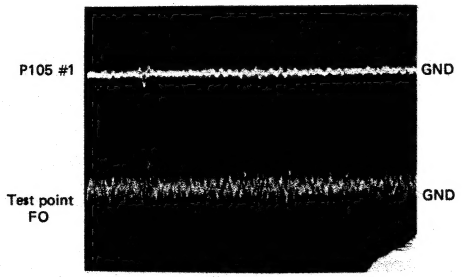


Photo 2

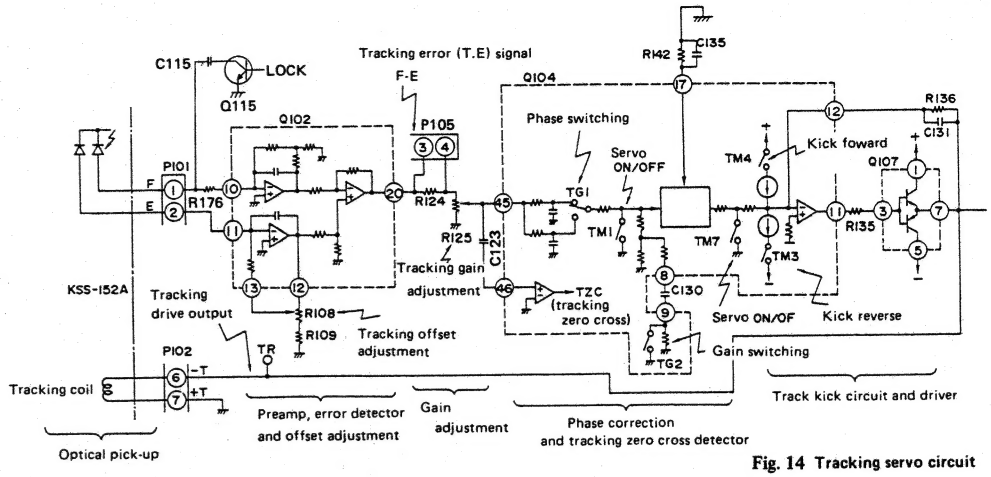


Fig. 14 Tracking servo circuit

2. Tracking servo circuit

On the disc at a pitch of 1.6μm, the laser beam accurately traces the center of the pits cut into the disc, and this is the control circuit that shifts the objective lens in the radial direction.

2-1. Error detection circuit

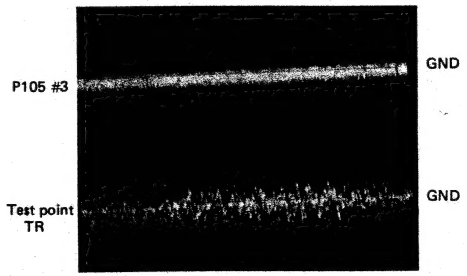
The F-E is obtained from the tracking error (T.E.) signal by means of a 3 beam method. The F.E. signal input to pins 10 and 11 of Q102 is subtracted internally, and is output as the T.E. signal from pin 20. R108 is the semi-fixed resistor control for tracking offset.

2-2. Phase correction and driver circuit

The T.E. signal adjusted for gain by means of the semi-fixed resistor R125 passes through the phase correction circuit from pin 45 of Q104, and from pin 11 by way of driver Q107 objective lens. TM1 and TM7 are used as the tracking servo ON/OFF switches, and TG1 and TG2 respectively are used as the phase selector and gain selector switches.

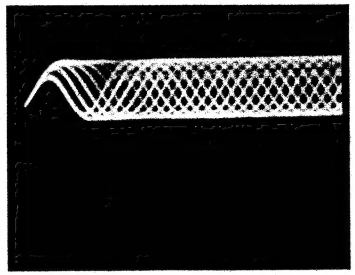
2-3. Tracking zero cross and track kick circuit

At the time the head comes out and when there is manual fast forward, in the event that is it necessary to skip over the track being traced, the T.E. signal receives a kick pulse, and by mens of this, shifting of the objective lens can be achieved.
TM3 and TM4 respectively are the switches for providing the forward and reverse direction kick pulses. Also, the tracking zero cross (TZC) circuit counts the number of tracks skipped over and produces the signal in order to determine the timing of the servo ON/OFF.
The ON/OFF command for these switches is output from the microcomputer.



0.5V/div. 0.5ms/div.
Tracking signal

Photo 3



0.2 μs/div. 0.5mV/div.
Signal HF (RF)
Play the track 2 of YEDS-18.

Photo 4

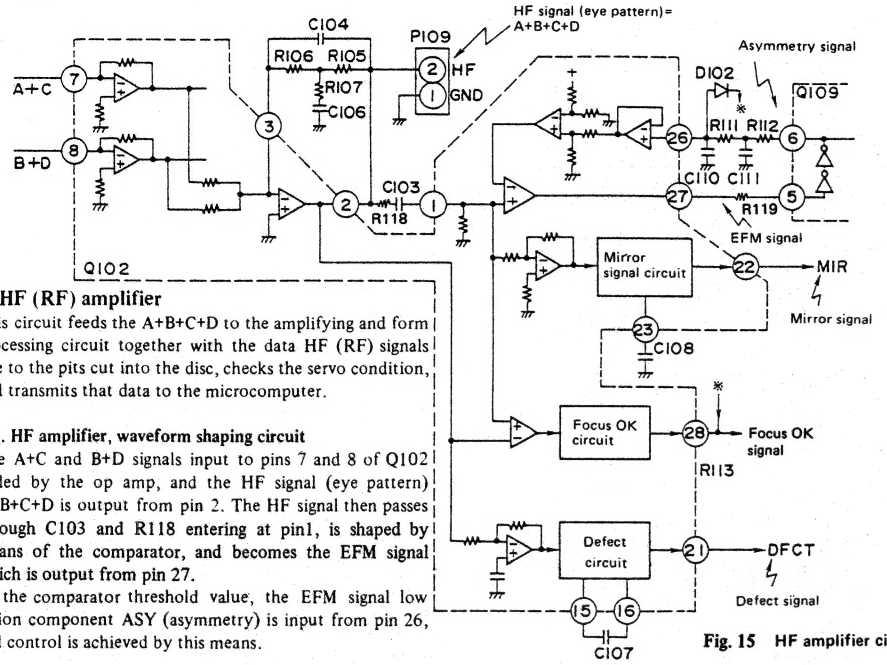


Fig. 15 HF amplifier circuit

3. HF (RF) amplifier

This circuit feeds the A+B+C+D to the amplifying and form processing circuit together with the data HF (RF) signals due to the pits cut into the disc, checks the servo condition, and transmits that data to the microcomputer.

3-1. HF amplifier, waveform shaping circuit

The A+C and B+D signals input to pins 7 and 8 of Q102 added by the op amp, and the HF signal (eye pattern) A+B+C+D is output from pin 2. The HF signal then passes through C103 and R118 entering at pin1, is shaped by means of the comparator, and becomes the EFM signal which is output from pin 27.

In the comparator threshold value, the EFM signal low region component ASY (asymmetry) is input from pin 26, and control is achieved by this means.

3-2. MIR circuit, FOK circuit, and DFCT circuit

After the HF signal is processed the detection, shaping, etc, respectively the MIR, FOK, and DFCT signals are output from pins 22, 28, and 21.

3-2-1. MIR (mirror) signal

When the head is extended, at the time the signal becomes high at the disc track and between tracks, the number of tracks is counted, and this is used for determining the timing for the ON/OFF of the servo.

3-2-2. FOK (focus OK) signal

This signal goes high at the time the focus servo is required. (Refer to 1–3)

3-2-3. DFCT (defect) signal

If there is a defect (scratch, dirt, etc.) in the disc, this signal goes high, the servo and gain are controlled, and the circuit prevents a sound outburst.

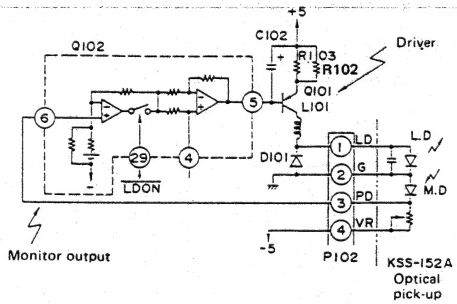


Fig. 16 APC circuit

4. APC circuit

By means of feedback from the monitor, this circuit controls the light output due to a bad condition resulting from the temperature characteristic of the laser diode.

For the pin 29 LDON (laser diode ON) signal, when the APC ON/OFF control signal is LOW, the laser is emitted.

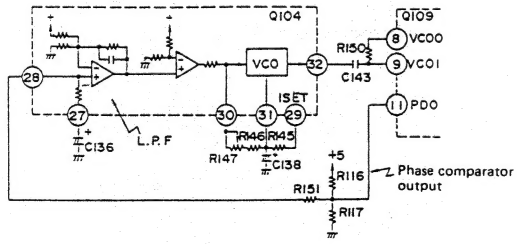


Fig. 17 PLL circuit

5. CLV servo circuit

In the compact disc there is a CLV system (constant linear velocity), and at the replay position, because the disc rotary speed varies, the clock is taken out of the HF signal, and the PLL circuit and its clock must be synchronized to control the spindle motor.

5-1. PLL circuit

As shown in Fig. 6, for the phase comparator, in Q109 the LPF and VCO are each built into Q104. The semi-fixed resistor R147 is the control for adjusting the 8.6436 MHz free run frequency (WFCK = 7.35 KHz).

5-2. Spindle motor control circuit

The output of the phase comparator (MDP) and frequency comparator (MDS) from pins 3 and 4 of Q109 is fed to pins 34 and 36 of Q104. Also, the spindle motor ON/OFF signal (MON) from pin 2 of Q109, and the phase selector signal (FSW) from pin 1, are output and fed to pin 36 of Q104. After these signals are processed in Q104, they are passed from pin 39 through the driver Q108, and are supplied to the spindle motor.

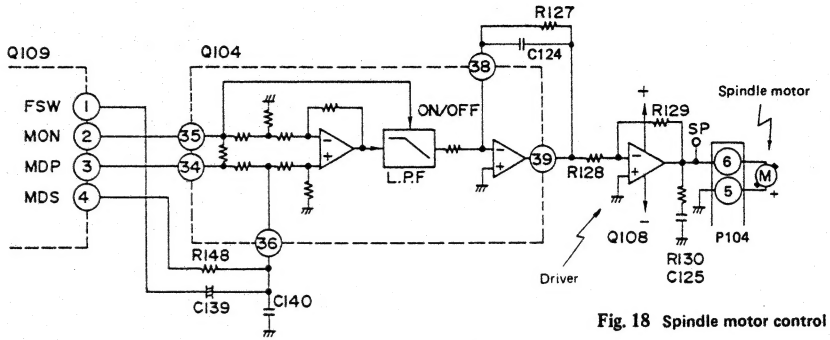


Fig. 18 Spindle motor control circuit

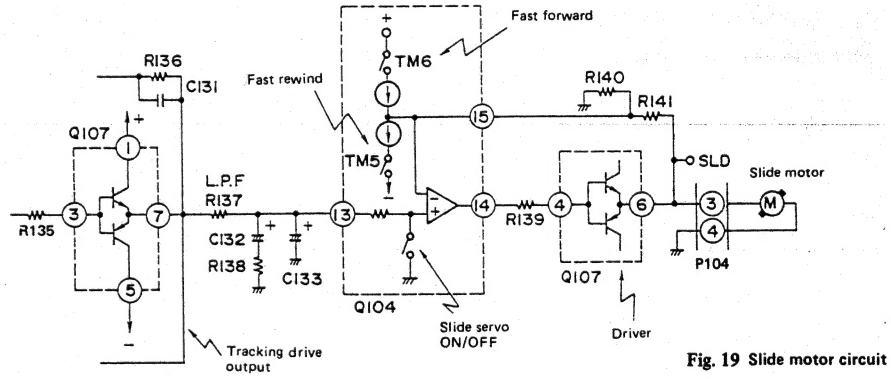
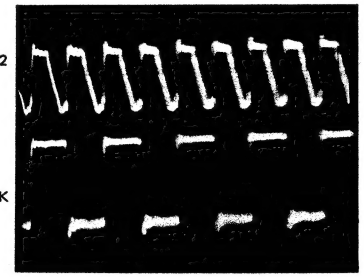


Fig. 19 Slide motor circuit

6. Slide motor circuit

This circuit controls the slide motor which is used for moving the optical pickup from inside the disc to the outside. In the normal playback time, the low region component of the tracking driver output is amplified and fed to the motor, but when the head is extended, switches TM5 and TM6 internal to Q104 control the ON/OFF.



1V/div. (Upper) 2V/div. (Lower)
0.1 μs/div.

Photo 5

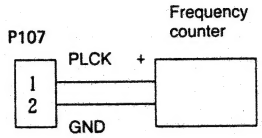
ADJUSTMENT PROCEDURES

Instruments required

Dual trace oscilloscope, Frequency counter, AF oscillator, Test disc (SONY YEDS-18), AC voltmeter, Jitter meter, Sockets P106 & P107 (Part No. 25050089) P105 (Part No. 25050138)

1. VCO frequency adjustment

Connect the frequency counter to terminal P107.
Turn the power switch to ON.(No load the disc.)
Adjust R147 until the frequency counter reading becomes 4322 ±5kHz.
After adjustment, disconnect the frequency counter.



Use the high impedance probe more than 10 MΩ.

2. Focus offset adjustment

Load the test disc YEDS-18 on the tray and play the track 2.
Connect the oscilloscope or jitter meter to terminal P106.
(Oscilloscope)
Adjust R110 until a clear trace of waveform pattern as shown photo 1 appear on the oscilloscope.
When the amount of jitter is broad, set R110 to mechanical center.
(Jitter meter)
Adjust R110 until the jitter meter reading becomes minimum.(Less than 10ns.)
After adjustment, disconnect the oscilloscope or jittter meter.

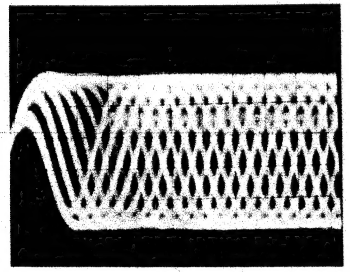
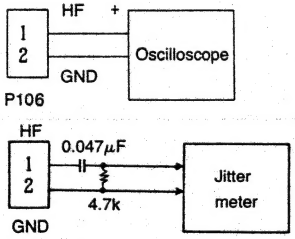


Photo 6



Oscilloscope range
Vertical : 0.2V/div.
Holizontal : 0.5 μs/div.

3. Tracking offset adjustment

Play the track 2 of test disc.
Turn R125 to minimum position.(Counter clockwise)
Connect the oscilloscope between pin 3 (TR) of P105 and pin 2 (GND) of P106.
Adjust R108 until the center of tracking error signal on the oscilloscope becomes GND level.
Turn R125 to the mechanical center.
After adjustment, disconnect the oscilloscope.

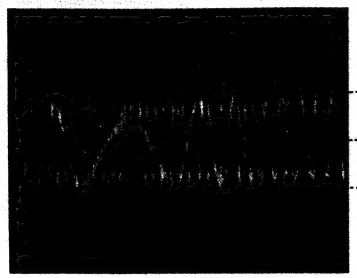
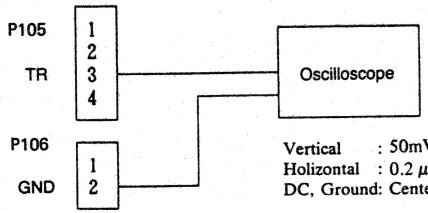


Photo 7



Vertical : 50mV/div.
Holizontal : 0.2 μs/div.
DC, Ground: Center

4. Focus gain adjustment

Set the output of AF oscillator to 800Hz, 1~1.5Vp-p.
Play the track 2 of test disc.
Connect the oscilloscope and the AF oscillator as shown below.

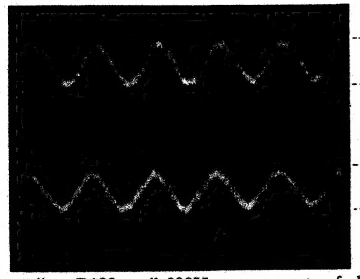
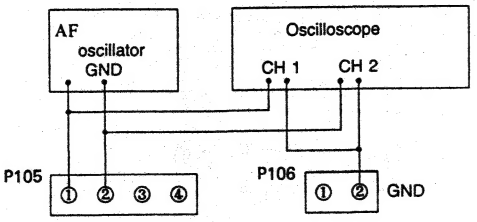


Photo 8



Vertical : 0.5V/div.
Holizontal: 1 ms/div.

Adjust R122 until 800Hz components of channels 1 and 2 on oscilloscope become same level.
After adjustment, disconnect the AF oscillator and the oscilloscope.

5. Tracking gain adjustment

Set the output of AF oscillator to 1.2kHz, 1~1.5Vp-p.
Play the track 2 of test disc.
Connect the oscilloscope and the AF oscillator as shown below.

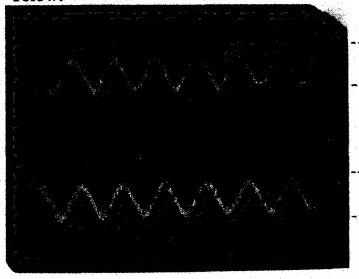
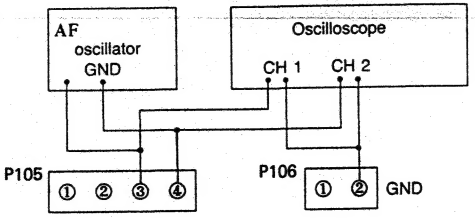


Photo 9



Vertical : 0.5V/div.
Holizontal: 0.5 ms/div.

Adjust R125 until 1.2kHz components of channels 1 and 2 on oscilloscope become same level.
After adjustment, disconnect the AF oscillator and the oscilloscope.

6. MSB adjustment

Play the track 2 of test disc.
Read the output signal and regard it as 0 dB. Then, play the track 17.
Adjust R403 (R404) so that the output level becomes –60dB.
NOTE: ( ): R channel

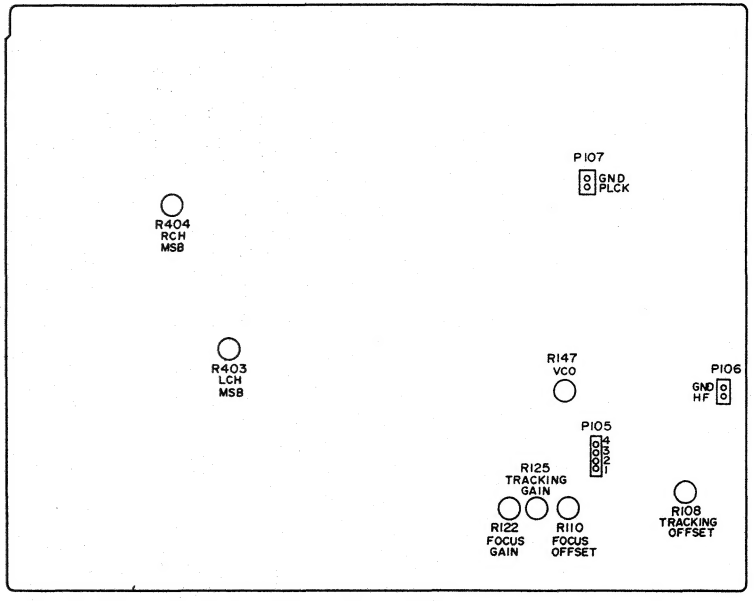


Fig. 20 ADJUSTMENT POINT

MECHANISM ADJUSTMENT

Height of turntable platter.

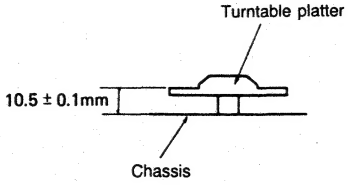


Fig. 21

Slide motor

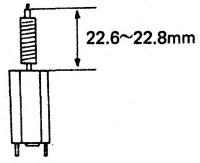


Fig. 22

Tray motor

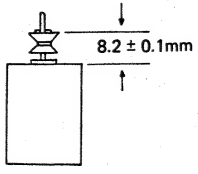


Fig. 23

TROUBLESHOOTING GUIDE

Symptom: Defective reading (No RF signal emitted)

Load the disc on the tray, press OPEN/CLOSE key and close the tray. But, the total number of tunes are not indicated on the fluorescent indicator tube.

1. Remove the top cover.
2. Does the disc turn clockwise? . . . . . Yes . . . . . Next page
   No . . . . Remove the bracket holder and arm ass'y. Check the following when turning on power without the disc.

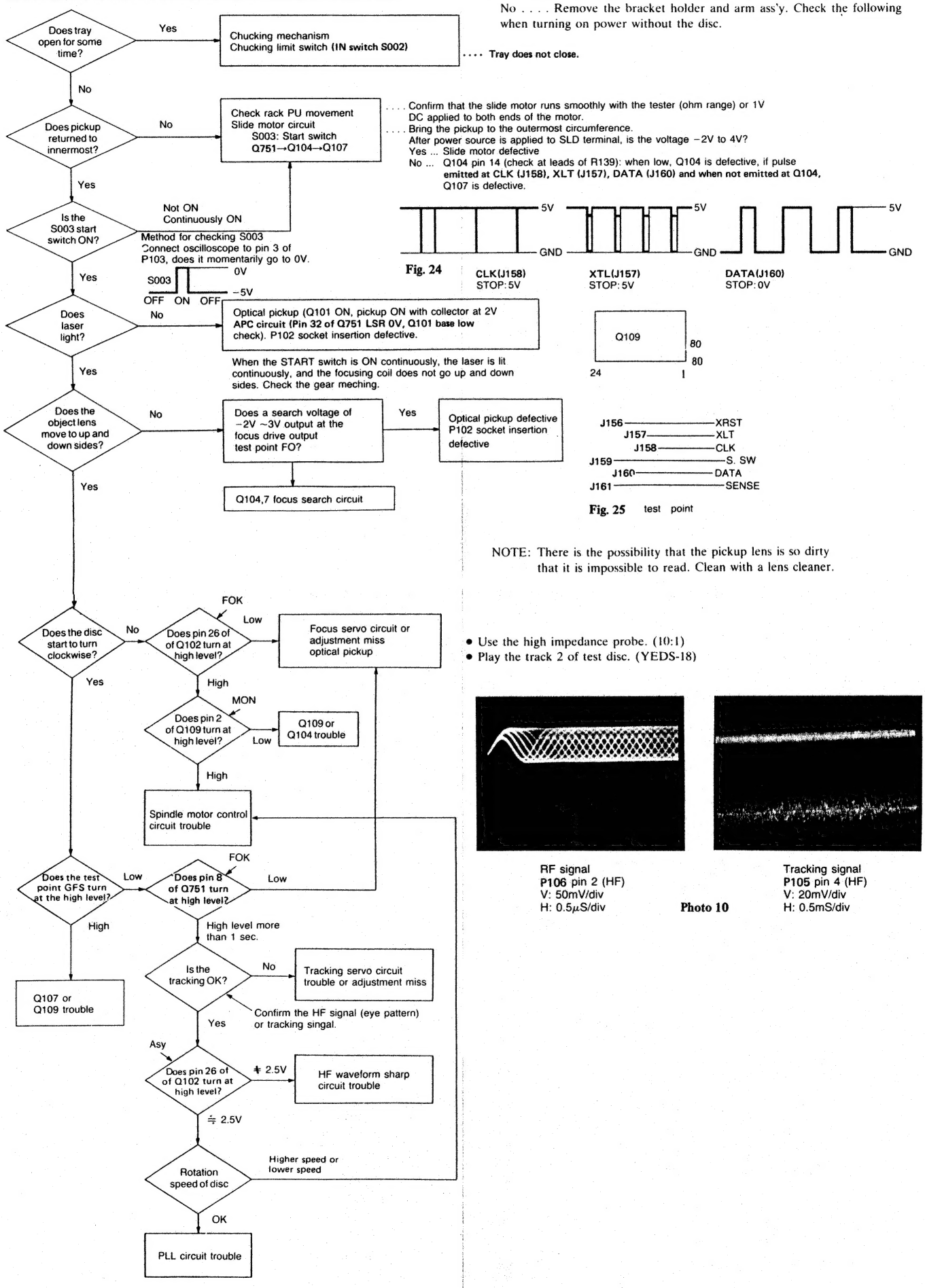


Fig. 24 CLK(J158) STOP: 5V; XTL(J157) STOP: 5V; DATA(J160) STOP: 0V

Fig. 25 test point

NOTE: There is the possibility that the pickup lens is so dirty that it is impossible to read. Clean with a lens cleaner.

- Use the high impedance probe. (10:1)
- Play the track 2 of test disc. (YEDS-18)

RF signal
P106 pin 2 (HF)
V: 50mV/div
H: 0.5μS/div

Tracking signal
P105 pin 4 (HF)
V: 20mV/div
H: 0.5mS/div

Photo 10

IC BLOCK DIAGRAM AND DESCRIPTIONS

Q102
CXA1081M (RF Amp)

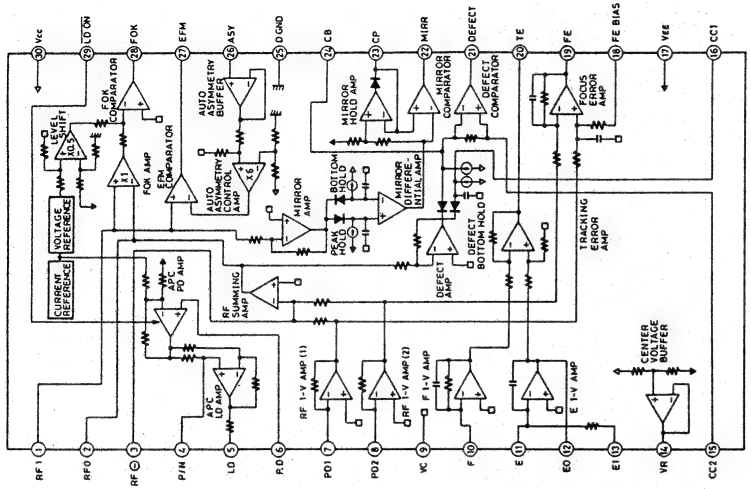


Fig. 26

Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	RF I	Input terminal of output signal of RF summing amplifier via the coupling capacitor	16	CC1	Defect bottom hold output terminal
2	RFO	Output terminal of RF summing amplifier	17	V_{EE}	Negative power supply terminal
3	RF−	Input terminal of RF summing amplifier feedback	18	FE BIAS	Non-inversion bias terminal of focus error amplifier CMR adjustment of focus error amplifier
4	P/N	Switching terminal of P-SUB/N-SUB of LD (laser diode)	19	FE	Output terminal of focus error amplifier
5	LD	Output terminal of APC LD amplifier	20	TE	Output terminal of tracking error amplifier
6	PD	Input terminal of APC PD (Pin diode) amplifier	21	DEFECT	Output terminal of defect comparator
7	PD1	Inversion input terminal of RF I-V amplifier (1) Connect to A+C of PIN diodes.	22	MIRR	Output terminal of mirror comparator
8	PD2	Inversion input terminal of RF I-V amplifier (2) Connect to B+D of PIN diodes.	23	CP	Connection terminal of capacitor for mirror hold Non-inversion input of mirror comparator
9	VC	Connect to GND.	24	CB	Connection terminal of capacitor for defect bottom hold
10	F	Inversion input terminal of F I-V amplifier Connect to F of PIN diode.	25	DGND	Connect to GND
11	E	Inversion input terminal of E I-V amplifier Connect to E of PIN diode.	26	ASY	Auto asymmetry control input terminal
12	E0	Output terminal of E I-V amplifier	27	EFM	Output terminal of EFM comparator
13	E1	Feedback input terminal of E I-V amplifier Gain adjustment of E I-V amplifier	28	FOK	Output terminal of FOK comparator
14	VR	DC voltage output terminal of (Vcc + V_{EE})/2	29	$\overline{\text{LD ON}}$	ON/OFF switching terminal of laser diode
15	CC2	Input terminal from defect bottom hold output signal via the coupling capacitor	30	Vcc	Positive power supply

Q104
CXA1082BQ (Servo Signal Processor)

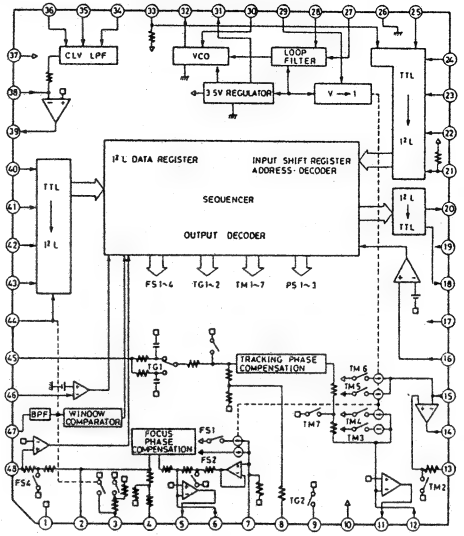
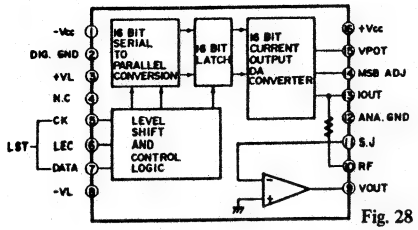


Fig. 27

Pin No.	Symbol	Function	Pin No.	Symbol	Function
2	FGD	Insert the capacitor between this terminal and pin 3 when drop the high frequency gain of focus servo	28	PDI	Input terminal of phase comparator output PDO
3	FS3	Switching terminal of high frequency gain of focus servo	21 22 23 24 25 33	DIRCT XRST DATA XTL CLK LOCK	Input terminals for microcomputer and interface
4	FLB	Time constant switching terminal when raise the low frequency gain of focus servo	29	ISET	Flow the current to decide the focus search, track jump, and kick height
5 11 14 39	FEO TAO SLO SPDLO	Operation amplifier output terminals for power transistor drive	30	VCOP	VCO free run frequency is proportion to resistor value between pins 30 and 31
6	FE−	Inversion input terminal of focus amplifier	32	C864	VCO (8.64MHz) output terminal
7	SRCH	Time constant terminal to make the focus search waveform	34	MDP	Connection terminal to terminal MDP of CXD1130Q
8	TGU	Time constant terminal for high frequency gain switching of tracking	35	MON	Connection terminal to terminal MON of CXD1130Q
9	TG2	Time constant terminal for high frequency gain switching of tracking	36	FSW	LPF time constant terminal of CLV servo error signal
12	TA−	Inversion input terminal of tracking amplifier	38	SPDL−	Inversion input terminal of spindle drive amplifier
13	SL+	Non-inversion input terminal of sled amplifier	40 41 42 44	WDCK FOK MIRR DFCT	Input terminals for microcomputer and interface
15	SL−	Inversion input terminal of sled amplifier	45	TE	Tracking error signal input terminal
16	SSTOP	Limit switch ON/OFF detector signal terminal for disc innermost position detector	46	TZC	Tracking zero cross comparator input terminal
17	FSET	Terminal of peak of phase compensation of focus tracking and of setting of LPF	47	ATSC	Window comparator input terminal for ATSC detection
18 20	SENS C.OUT	Output terminals for microcomputer and interface	48	FE	Focus error signal input terminal
27	BW	Time constant terminal of loop filter			

Q401, Q402
PCM-56P-L (D/A Converter)



1	−Vcc	Analog power supply(−)	9	VOUT	Output
2	DIG GND	Digital ground	10	RF	Feedback register
3	+VL	Logic voltage (+)	11	SJ	Operation amplifier input
4	NC	Not used	12	ANA GND	Analog ground
5	CK	Clock input	13	IOUT	Current output
6	LEC	Latch enable input	14	MSB ADJ	MSB adjustment terminal
7	DATA	Data input	15	VPOT	Meter terminal
8	−VL	Logic voltage (−)	16	+Vcc	Analog power supply (+)

Fig. 28

Q109
CXD1130Q (Digital Signal Processor)

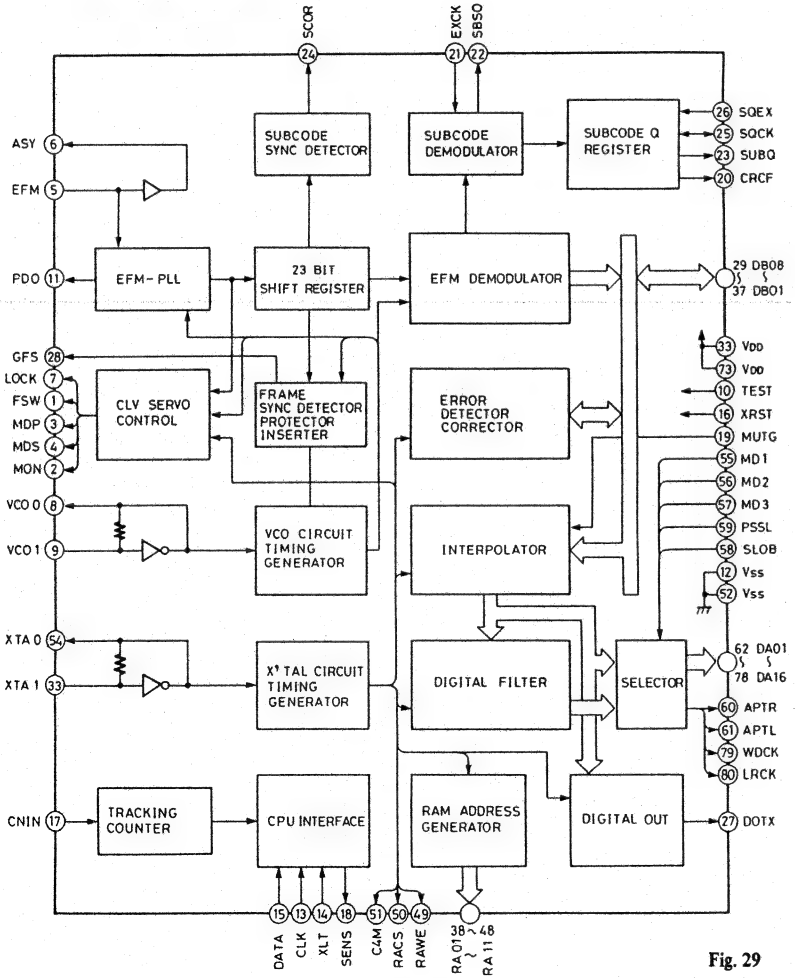


Fig. 29

Pin No.	Symbol	Function
1	FSW	Time constant switching output terminal of output filter of spindle motor
2	MON	ON/OFF control output terminal of spindle motor
3	MDP	Drive output terminal of spindle motor. Rough control when mode CLV-S and phase control when mode CLV-P
4	MDS	Drive output terminal of spindle motor. Speed control when mode CLV-P
5	EFM	EFM signal input terminal from RF amplifier
6	ASY	Output terminal to control the slice level of EFM signal
7	LOCK	GFS sampling terminal
8	VCOO	VCO output terminal. 8.6436MHz when lock to EFM signal
9	VCOI	VCO input terminal
10	TEST	0V
11	PDO	Phase comparator output terminal of EFM signal and VCO/2
12	Vss	Ground
13	CLK	Serial data transmitter clock input terminal from microcomputer
14	XLT	Latch input terminal from microcomputer
15	DATA	Serial data input terminal from microcomputer
16	XRST	System rest input terminal. Reset at low level.
17	CNIN	Tracking pulse input erminal
18	SENS	Inner condition output terminal correspond to address
19	MUTG	Muting input terminal
20	CRCF	CRC check output terminal of subcode Q
21	EXCK	Clock input terminal for serial output of subcode
22	SBSO	Serial output terminal of subcode
23	SUBQ	Subcode Q output terminal
24	SCOR	Subcode sink S0 + S1 output terminal
25	SQCK	Clock terminal to read the subcode Q
26	SQEX	Selector input terminal of SQCK
27	DOTX	Digital output terminal
28	GFS	Indicator output of lock condition of frame sync
29 ~ 32	DB08 ~ DB05	Data terminals of external RAM
33	VDD	+5V
34 ~ 37	DB04 ~ DB01	Data terminals of external RAM
38 ~ 48	RA01 ~ RA11	Address output terminals of external RAM
49	RAWE	Write enable signal output to external RAM
50	RACS	Chip selector signal output to external RAM
51	C4M	Divider output of crystal. f=4.2336MHz
52	Vss	Ground
53	XTAI	Input terminal of crystal oscillator
54	XTAO	Output terminal of crystal oscillator
55 ~ 57	MD1 ~ MD3	Mode switching input terminals
58	SLOB	Code switching input of audio data output.
59	PSSL	Mode switching input of audio data output. Serial output at low level. Parallel output at high level
60	APTR	Control output for aperture correction. High level when Rch.
61	APTL	Control output for aperture correction. High level when Lch.
62	DA01	DA01 (LSB of parallel sound output) output when PSSL = H. C1F1 output when PSSL = L
63	DA02	DA02 output when PSSL = H. C1F2 output when PSSL = L.
64	DA03	DA03 output when PSSL = H. C2F1 output when PSSL = L.
65	DA04	DA04 output when PSSL = H. C2F2 output when PSSL = L.
66	DA05	DA05 output when PSSL = H. C2FL output when PSSL = L.
67	DA06	DA06 output when PSSL = H. C2PO output when PSSL = L.
68	DA07	DA07 output when PSSL = H. RFCK output when PSSL = L.
69	DA08	DA08 output when PSSL = H. WFCK output when PSSL = L.
70	DA09	DA09 output when PSSL = H. PLCK output when PSSL = L.
71	DA10	DA10 output when PSSL = H. UGFS output when PSSL = L.
72	DA11	DA11 output when PSSL = H. GTOP output when PSSL = L.
73	VDD	Power supply (5V)
74	DA12	DA12 output when PSSL = H. RAOV output when PSSL = L.
75	DA13	DA13 output when PSSL = H. C4LR output when PSSL = L.
76	DA14	DA14 output when PSSL = H. C210 output when PSSL = L.
77	DA15	DA15 output when PSSL = H. C210 output when PSSL = L.
78	DA16	DA16 (MSB of parallel sound output) output when PSSL = H. DATA output when PSSL = L
79	WDCK	Strobe signal output. 176.4kHz when DF is on. 88.2kHz when DF is off.
80	LRCK	Strobe signal output. 88.2kHz when DF is on. 44.1kHz when DF is off.

Q110 (Static RAM)

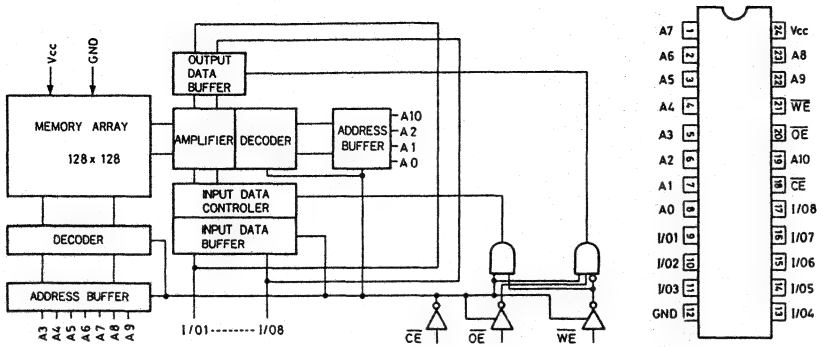


Fig. 30

Q113
SM5817AP (Digital filter)

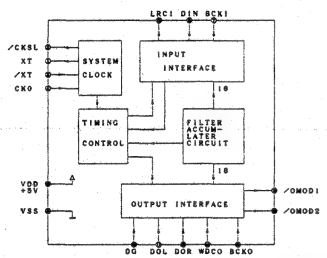


Fig. 31

Pin No.	Symbol	I/O	Description
1,2	XT,/XT	I,O	Reference clock input/output terminals. fref=384fs
3	/CKSL	I	Reference clock frequency selection input.384fs at high level.
4	CKO	O	Clock output terminal (Buffer output signal of input XT).
5	LCRI	I	Synchronizing clock input terminal for fs.
6	DIN	I	Serial data input terminal.
7	BCKI	I	Bit clock input terminal.
8	Vss		Connect to ground.
9	/OMOD1	I	Stereo output mode at high level.
10	DG	O	Deglitching signal output (8 fs rates)
11	DOL	O	Serial data output terminal for left channel (16 bits).
12	DOR	O	Serial data output terminal for right channel (16 bits).
13	/OMOD2	I	Mode selection input for output signal of terminals DOL and DOR.16 bit DAC connection mode at high level.
14	WDCO	O	Word clock output terminal.
15	BCKO	O	Bit clock output terminal.(192 fs rates)
16	VDD		+5V power supply terminal.

NOTE:fs=44.1kHz

Q107
STA341M-L (Transistor array)

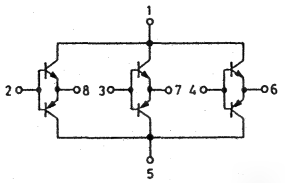


Fig. 32

Q112
LA6510 (Power operation amp.)

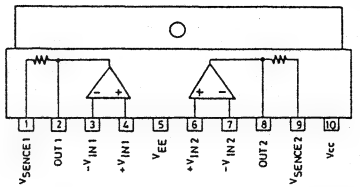


Fig. 33

Q752
M51943ASL (System reset)

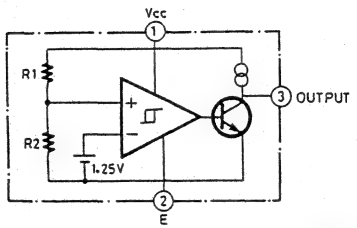


Fig. 34

Q114
74HC04P (Hex inverters)

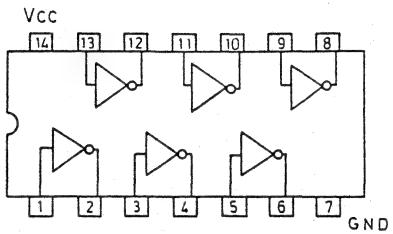


Fig. 35

Q403, Q404
M5218L (Op amp)

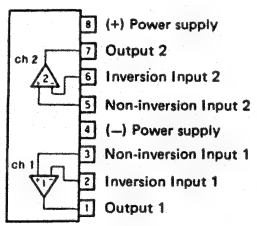


Fig. 36

Q704
GPIU501S (Remote control sensor)

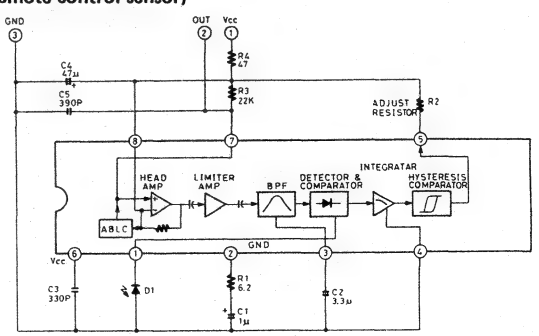


Fig. 37

MICROCOMPUTER DESCRIPTIONS

Q701 MASTER MICROCOMPUTER (M50941-149SP)
Function: Key input processing
System code processing
FL tube drive
Playback mode control (Memory, Shuffle, Repeat etc.)
Sub microcomputer control

Q751 SUB MICROCOMPUTER (MB88505HP-G-1041T-SH)
Function: Servo and mechanism system control
Sub code Q decoder

Q702 REMOCON MICROCOMPUTER (LC6527H-3722)
Function: Code convert (RI from remocon code)

M50941-186SP (MASTER MICROCOMPUTER)

Pin No.	Symbol	I/O	Description
1	Vref		Power supply reference of microcomputer.
2 ~ 5	IN7 ~ IN4	I	Key input terminals (A/D converter).
10~13	DATA 3~DATA 0	I/O	DATA bus terminals.
14	SCLK	I	Status transfer clock input from Q751.
16	MCLK	O	Command transfer clock output to Q751.
17	CMND	O	Command transfer signal output to Q751."L" active.
18	NRSC OUT	O	NRSC(RI) code output terminal.
24	NRSC IN	I	NRSC(RI) code input terminal.
26,30	GND		Ground terminals.
27	XRST	I	Reset input terminal.Reset at high level from low when power is turned on.
28	C4M	I	Reference clock input terminal. f=4.2336MHz
32	Vss		Connect to ground.
34,36	GND		Ground terminals.
35,37	+5V		Connect to +5V.
38	-Vdisp		Connect to -24V. Power supply terminal of FL tube.
39~54	a~p	O	Segment output terminals for FL tube.
55~62	1G~8G	O	Grid output terminals for FL tube.
63	AVcc		Power supply terminal for A/D converter(#2,3,4 and 5).Connect to +5V.
64	Vcc		+5V power supply terminal.

MB88505HP-G-1041T-SH (SUB MICROCOMPUTER)

Pin No.	Symbol	I/O	Description
1 ~ 4	DATA 0~DATA 3	I/O	Data bus terminals.
5	CMND	I	Command transfer signal terminal from Q701."L" active.
6	MCLK	I	Command transfer clock terminal from Q701.
7	SENS	I	Servo IC (Q104) and signal processing IC (Q109) sense information input terminal.
8	FOK	I	Focus input terminal. "H" when focus is on.
9 ~ 11	+5V	I	+5V power supply terminal.
12	IN SW	I	Loading IN switch information terminal."L" when tray is closed.
13	OUT SW	I	Loading OUT switch information terminal."L" when tray is openned.
14	ADJUST	I	E-F balance adjustment terminal. Not used.
15	CRCF	I	CRCF input terminal from Q109.
16	C4M	I	Reference clock input terminal.
18	XRST	I	Reset input terminal. Reset at high from low when power is turned on.
19	SCOR	I	Sub code sink input.
20	GND	I	Ground terminal.
21	Vss		Connect to ground.
22	SQCK	O	Sub code data read clock output.
23	SUBQ	I	Sub code data input.
25~30	ACCESS~POWER	O	Operation output terminal of servo system.
32	LSR	O	Laser diode control output terminal.Light on at low level.
33	OPEN	O	Loading motor control output. Tray opens at low level.
34	CLOSE	O	Loading motor control output. Tray closes at low level.
35	MUTE	O	Audio muting control output terminal. "H" active.
36	EMPH	O	Emphasis control output terminal. "H" active.
37	CLK	O	Serial command transfer clock output to servo system.
38	DATA	O	Serial command data output to servo system.
39	XLT	O	Serial command execution output to servo system.
40	SCLK	O	Status transfer clock output to Q701.
42	Vcc		+5V power supply terminal.

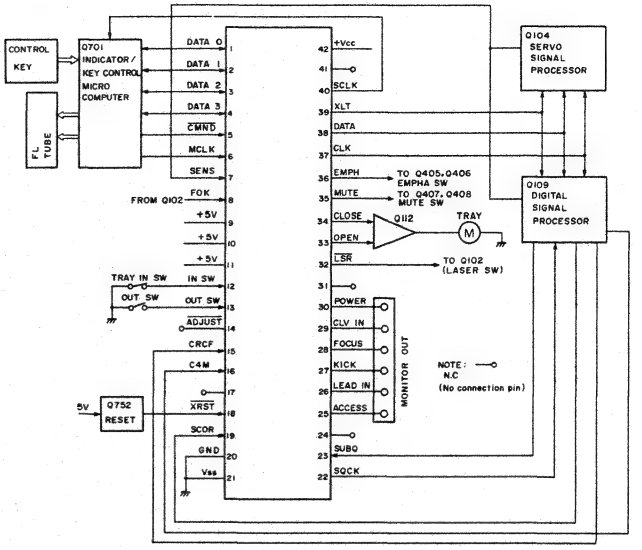


Fig. 38

Q703
8-BT-8OGK (FL tube)

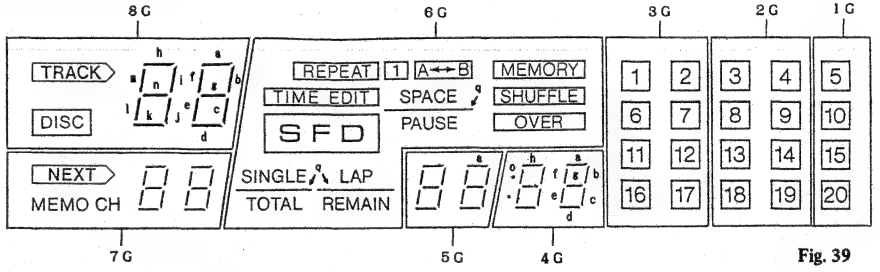


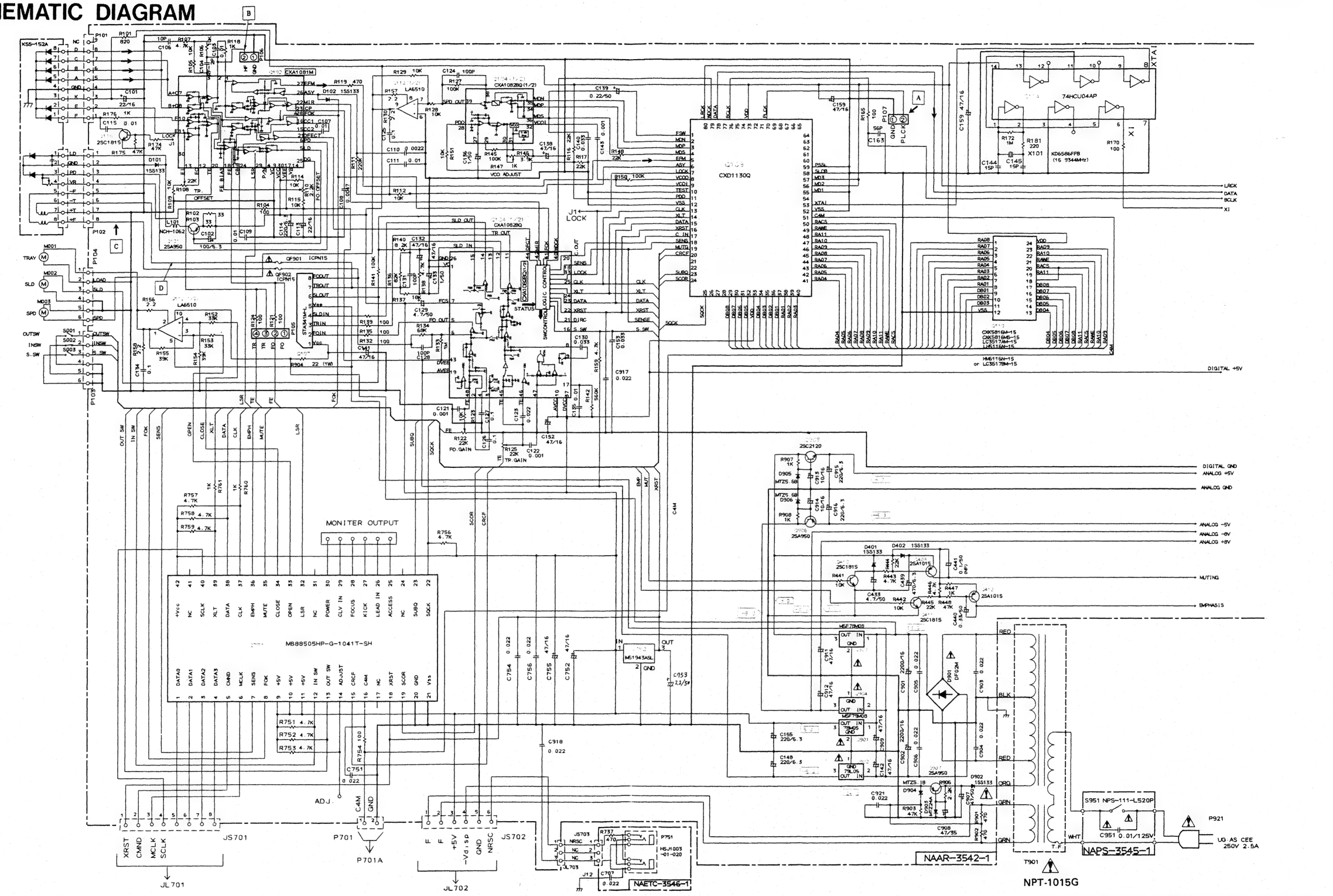
Fig. 39

ANODE CONNECTION

	8 G	7 G	6 G	5 G	4 G	3 G	2 G	1 G
a	a	a	REPEAT	a	a	1	3	5
b	b	b	TIME EDIT	b	b	□ (1)	□ (3)	□ (5)
c	c	c	SFD	c	c	6	8	10
d	d	d	□ (SFD)	d	d	7	9	-
e	e	e	1	e	e	□ (6)	□ (8)	□ (10)
f	f	f	A↔B	f	f	2	4	-
g	g	g	SPACE	g	g	□ (2)	□ (4)	-
h	h	h	PAUSE	h	h	□ (7)	□ (9)	-
i	i	i	MEMORY	i	i	11	13	15
j	j	j	SHUFFLE	j	j	□ (12)	□ (14)	-
k	k	k	OVER	k	k	□ (16)	□ (18)	□ (20)
ℓ	ℓ	ℓ	SINGLE	ℓ	ℓ	16	18	20
m	m	m	TOTAL	m	m	□ (11)	□ (13)	□ (15)
n	n	n	LAP	n	n	12	14	-
o	TRACK	NEXT	REMAIN	-	• •	17	19	-
p	DISC	MEMO CH	-	-	-	□ (17)	□ (19)	-
q	-	-	≡	-	-	-	-	-

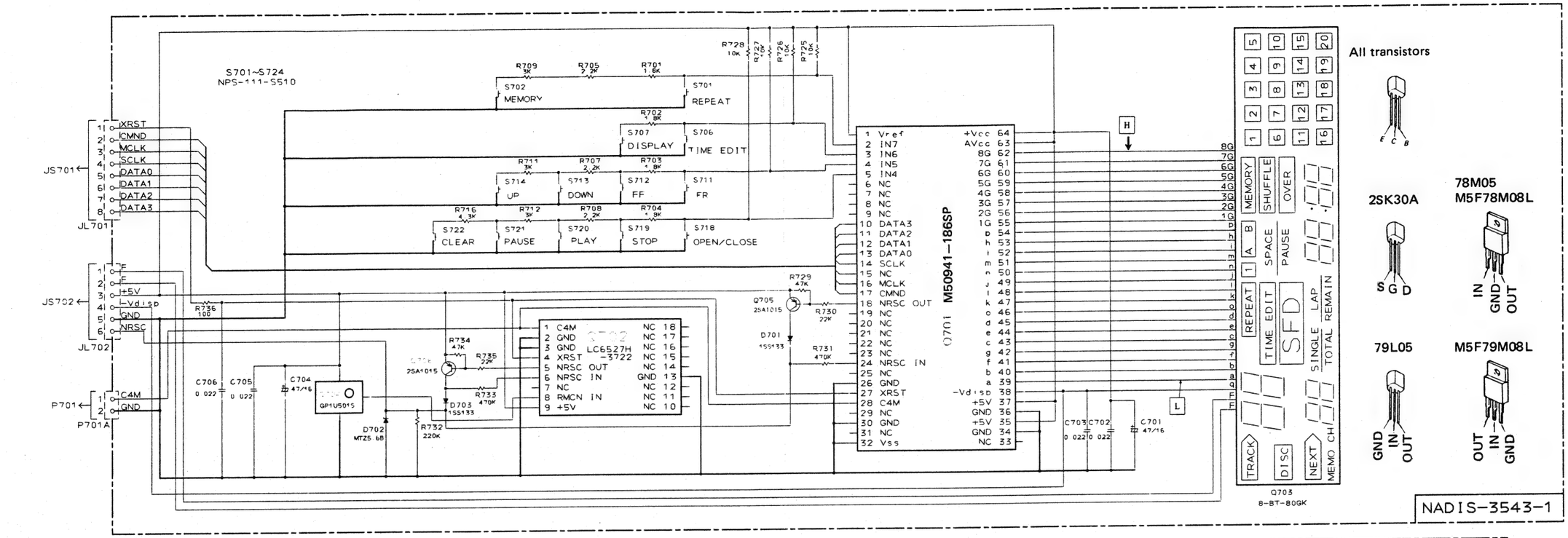
Fig. 40

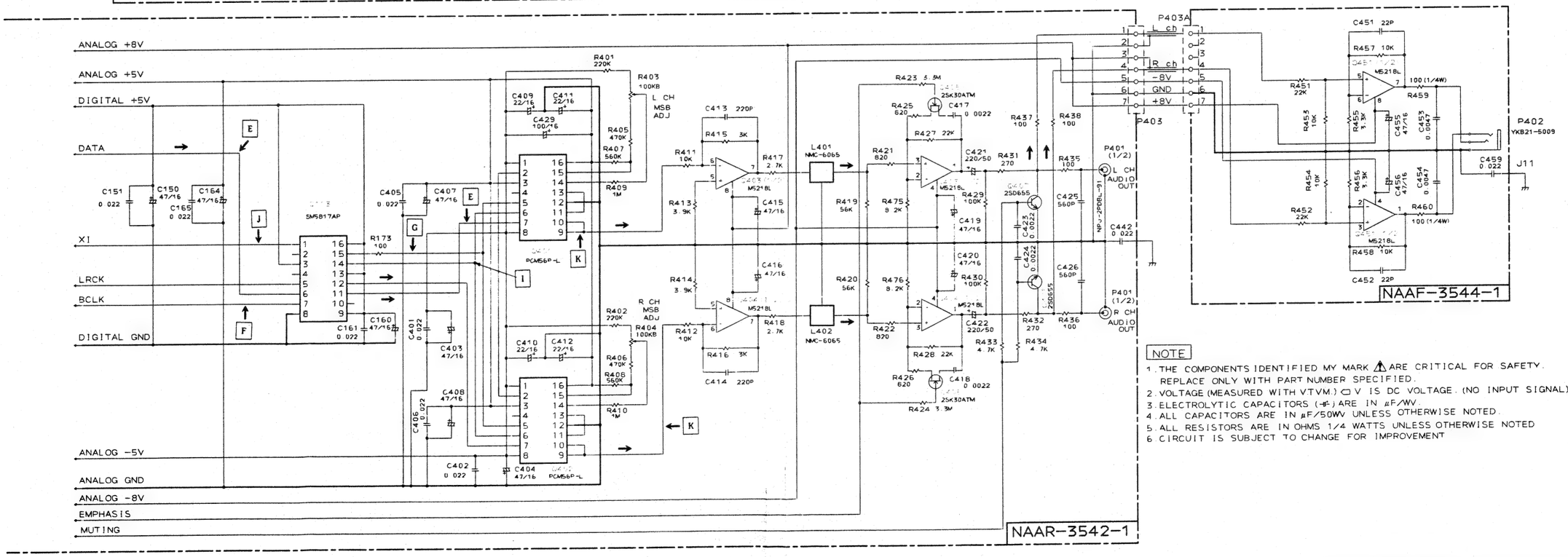
SCHEMATIC DIAGRAM



ONKYO CORPORATION

SCHEMATIC DIAGRAM





NOTE

1. THE COMPONENTS IDENTIFIED MY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
2. VOLTAGE (MEASURED WITH VTVM.) ⊏ V IS DC VOLTAGE. (NO INPUT SIGNAL)
3. ELECTROLYTIC CAPACITORS (-⊕-) ARE IN μF/WV.
4. ALL CAPACITORS ARE IN μF/50WV UNLESS OTHERWISE NOTED.
5. ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED
6. CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT

ONKYO CORPORATION

WAVEFORM OF EACH SECTION

- Use the high impedance (more than 10Mohm) probe. (10:1)
- Play the track 2 of test disc YEDS-18.

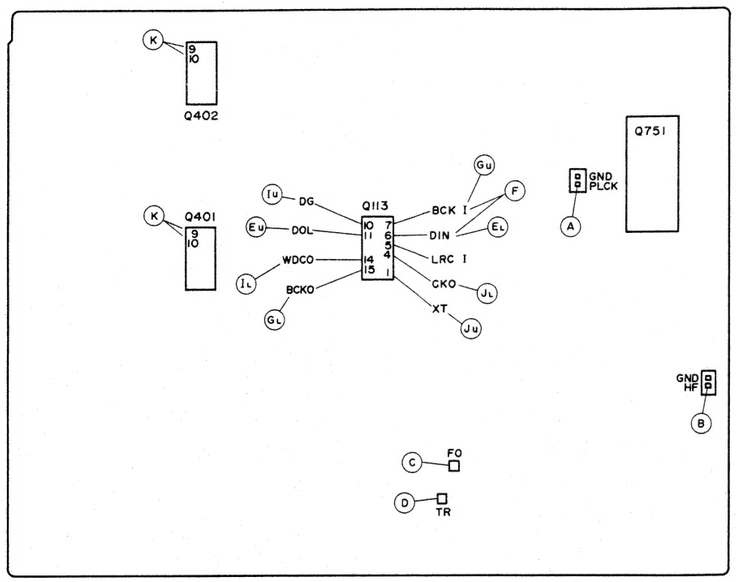
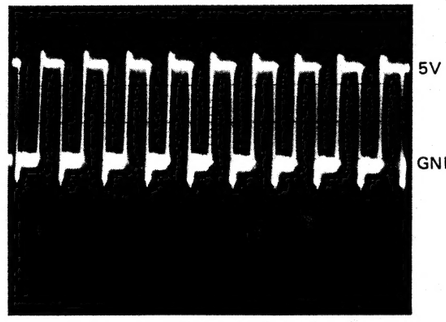


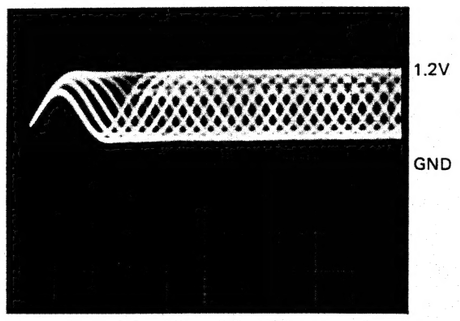
Fig. 41

A



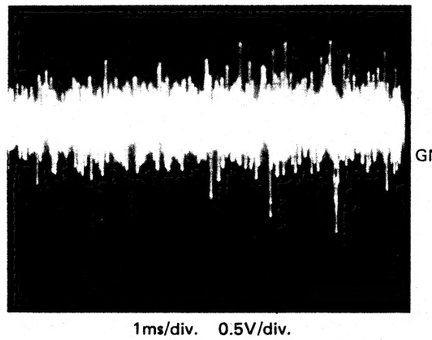
0.2 μs/div. 2V/div.

B



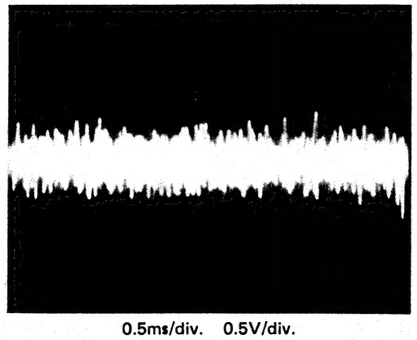
0.2 μs/div. 0.5mV/div.

C



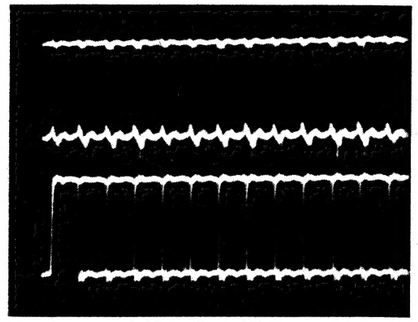
1ms/div. 0.5V/div.
Focus output

D



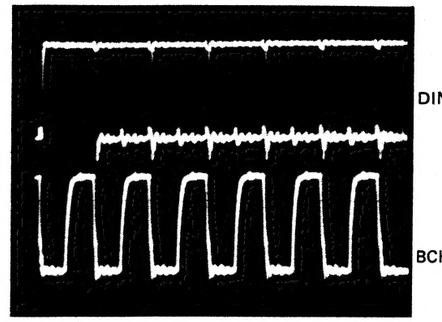
0.5ms/div. 0.5V/div.
Tracking output

E



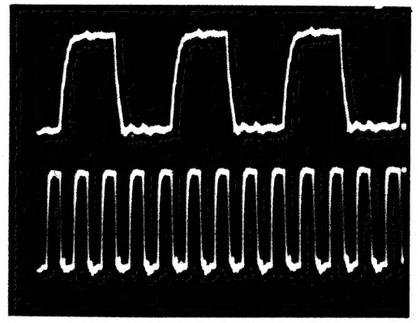
0.05 μs/div. 2V/div.

F



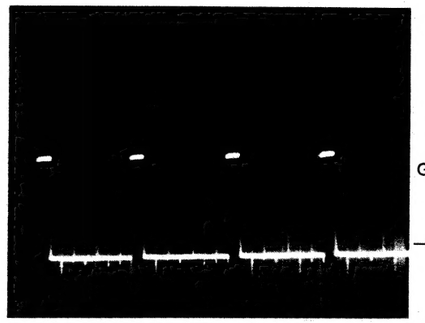
0.1 μ/div. 2V/div.

G



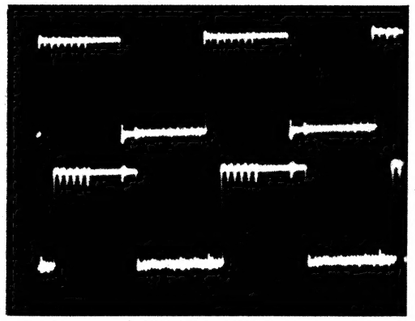
0.05 μs/div. 2V/div.

H



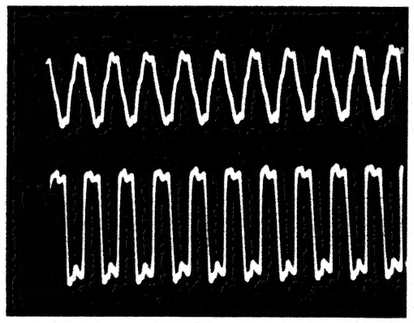
0.1ms/div. 10V/div.
Grid output

I



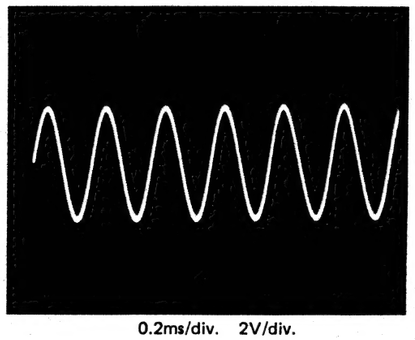
0.2 μs/div. 2V/div.

J



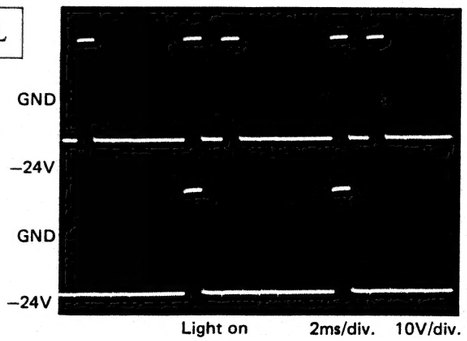
0.02 μs/div. 2V/div.

K



0.2ms/div. 2V/div.

L



Light on 2ms/div. 10V/div.
U: Segment output
L: Grid output

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

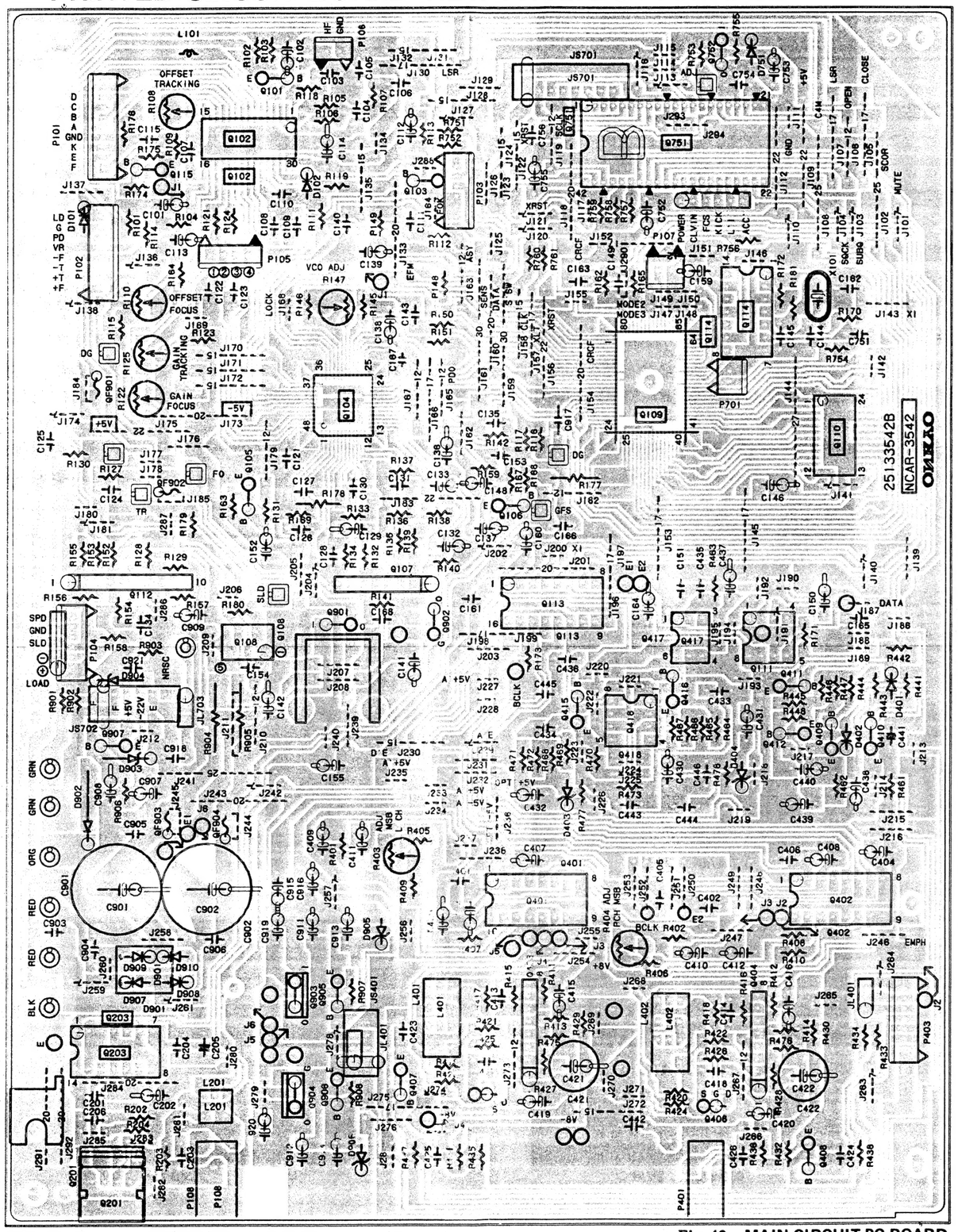


Fig. 42 MAIN CIRCUIT PC BOARD

PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD(NAAR-3542-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q102	22240029	CXA1081M
Q104	22240223	CXA1082BQ
Q107	22240168	STA341M-L
Q109	22240095	CXD1130Q
Q110	222990,	CXK5816M-15,
	22240142,	CXK5816MS-15,
	22240032,	LC3517AM-15,
	22240203,	LC5116N-15,
	222882 or	HM6116FP-4 or
	22240233	LC3517BM-15
Q112	22240034	LA6510
Q113	22240237	SM5817AP
Q114	222755	74HCU04P
Q401,Q402	22240096	PCM56P-L
Q403,Q404	222652	M5218L
Q751	22240236	MB88505HP-G-1041T-SH
Q752	22240018	M51943ASL
Q901	222780052	78M05
Q902	222790053	79L05
Q903	222780085MIT	M5F78M08L
Q904	222790085MIT	M5F79M08L
	Transistors	
Q101	2211503 or	2SA950-O or
Q906,Q907	2211504	2SA950-Y
Q115,Q410	2211254,	2SC1815-Y,
Q411	2211255,	2SC1815-GR,
	2211183 or	2SC1740-R or
	2212485	JC501-Q
Q405, Q406	22112375	2SK30ATM-GR
Q407,Q408	2211705 or	2SD655-E or
	2211706	2SD655-F
Q409,Q412	2211454,	2SA1015-Y,
	2211455,	2SA1015-GR,
	2213074 or	2SA933-R or
	2212495	JA101-Q
Q905	2211163 or	2SC2120-O or
	2211164	2SC2120-Y
	Diodes	
D101,D102	223163	1SS133
D401,D402	223163	1SS133
D901	223892	DF02M
D902	223163	1SS133
D903	224652401 or	HZ24E-B1 or
	224452401	MTZ24A
D904	224650512 or	HZ5.1E-B2 or
	224450512	MTZ5.1B
D905, D906	224650562 or	HZ5.6E-B2 or
	224450562	MTZ5.6B
	X'tal	
X101	3010112	KD6586FFB
	Coils	
L101	231023	NCH-1062
L401,L402	232141	NMC-6065
	Capacitors	
C101,C113	354742209	22μF, 16V, Elect.
C102	354721019	100μF, 6.3V, Elect.
C103	371121034	0.01μF 5%, 50V, Mylar
C107,C109	371121034	0.01μF 5%, 50V, Mylar
C108	371124724	4700pF 5%, 50V, Mylar
C110	371122224	2200pF 5%, 50V, Mylar
C111,C115	371121034	0.01μF 5%, 50V, Mylar
C114	354722219	220μF, 6.3V, Elect.
C121,C122	371121024	1000pF 5%, 50V, Mylar
C123	371122234	0.022μF 5%, 50V, Mylar
C125-C127	371121044	0.1μF 5%, 50V, Mylar
C129	354780479	4.7μF, 50V, Elect.
C130	371123334	0.033μF 5%, 50V, Mylar
C132	354744709	47μF, 16V, Elect.
C133	357480109	1μF, 50V, Elect.
C134	371121044	0.1μF 5%, 50V, Mylar
C135	371121034	0.01μF 5%, 50V, Mylar
C136	354780109	1μF, 50V, Elect.
C138	354744709	47μF, 16V, Elect.
C139	354782299	0.22μF, 50V, Elect.
C140	371123334	0.033μF 5%, 50V, Mylar
C141,C142	354744709	47μF, 16V, Elect.
C146	354744709	47μF, 16V, Elect.
C148	354722219	220μF, 6.3V, Elect.
C150,C152	354744709	47μF, 16V, Elect.
C153	371123334	0.033μF 5%, 50V, Mylar
C155	354722219	220μF, 6.3V, Elect.
C159,C160	354744709	47μF, 16V, Elect.
C164	354744709	47μF, 16V, Elect.
C403,C404	354744709	47μF, 16V, Elect.
C407,C408	354744709	47μF, 16V, Elect.
C409-C412	354742209	22μF, 16V, Elect.
C413,C414	373302214	220pF 5%, 125V, Plastic (PP)
C415,C416	354744709	47μF, 16V, Elect.
C417,C418	371122224	2200pF 5%, 50V, Mylar
C419,C420	354744709	47μF, 16V, Elect.
C421,C422	354782219	220μF, 50V, Elect.
C423,C424	371122224	2200pF 5%, 50V, Mylar
C425,C426	373305614	560pF 5%, 125V, Plastic (PP)
C429	354741019	100μF, 16V, Elect.
C438	354780479	4.7μF, 50V, Elect.
C439	354724719	470μF, 6.3V, Elect.
C440	354783399	0.33μF, 50V, Elect.
C441	352981096	0.1μF, 50V, Non-polar elect.
C752,C755	354744709	47μF, 16V, Elect.
C753	354780229	2.2μF,50V, Elect.
C901,C902	354742229	2200μF, 16V, Elect.
C907	354784709	47μF, 50V, Elect.
C908	354764709	47μF, 35V, Elect.
C909	354744709	47μF, 16V, Elect.
C911,C912	354744709	47μF, 16V, Elect.
C913,C914	354741009	10μF, 16V, Elect.
C915,C916	354722219	220μF, 6.3V, Elect.
	Resistors	
R108	5210066	N06HR22KBD, Semi-fixed
R110	5210060	N06HR2.2KBD, Semi-fixed
R122,R125	5210066	N06HR22KBD, Semi-fixed
R147	5210058	N06HR1KBD, Semi-fixed
R403,R404	5210070	N06HR100KBD, Semi-fixed
R904	441622204	22ohm 5%, 1W, Metal oxide film
	Plugs	
P101	25055153	NPLG-9P137
P102	25055152	NPLG-8P136
P103,P104	25055150	NPLG-6P134
P105	25055045	NPLG-4P33
P106,P107	25055038	NPLG-2P29
P403	25055151	NPLG-7P135
P701	25055146	NPLG-2P130
	Terminal	
P401	25045211	NPJ-2PDBL91, Output
	Sockets	
JS701	25050272	NSCT-8P100
JS702	25050270	NSCT-6P98
	Radiator	
	27160211-1	RAD68B
	Screw	
	82143006	3P+6FN(BC), Pan head
	Fuses	
QF901,QF902	252112	ICPN15, IC protector

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

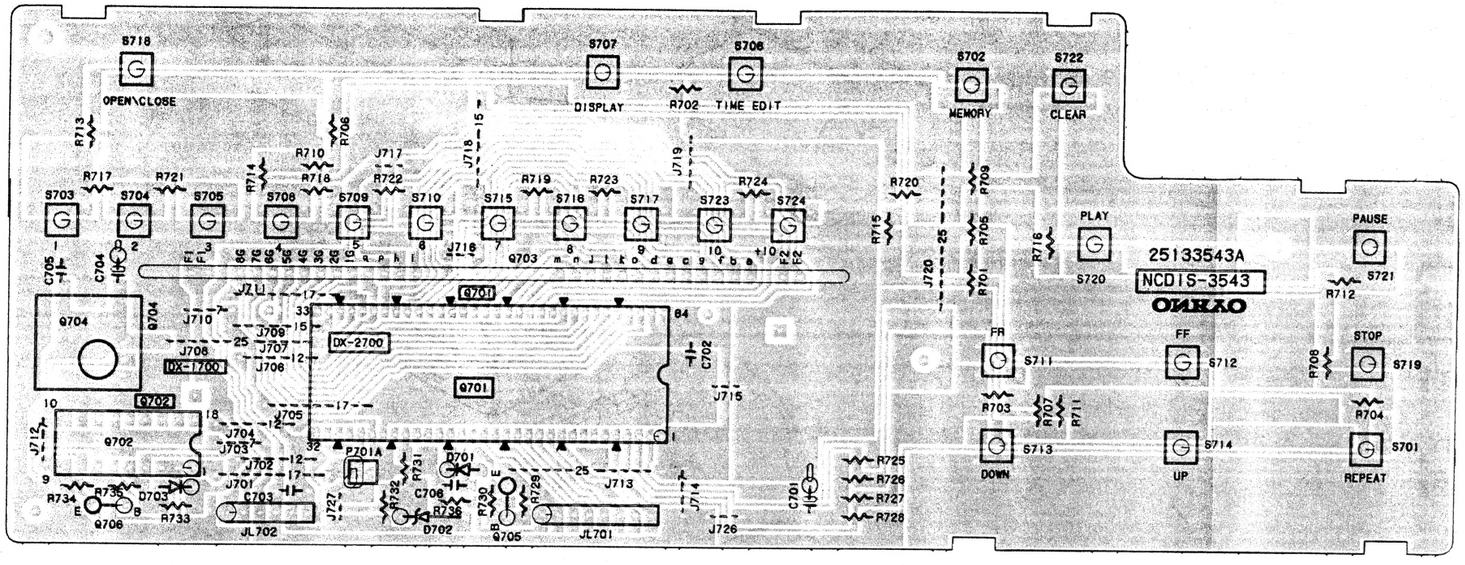


Fig. 43 DISPLAY CIRCUIT PC BOARD

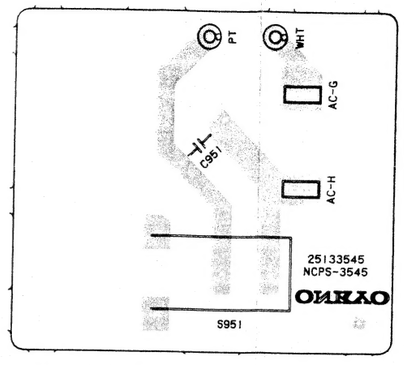


Fig. 44 POWER SUPPLY PC BOARD

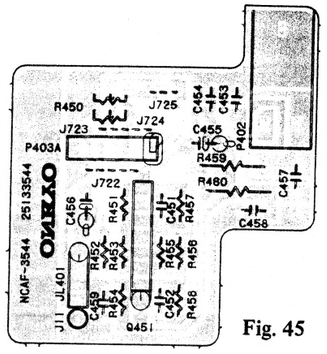


Fig. 45 HEADPHONE AMPLIFIER PC BOARD

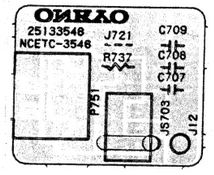


Fig. 46 SYNCRO. PC BOARD

DISPLAY CIRCUIT PC BOARD(NADIS-3543-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q701	22240235A	M50941-186SP
Q702	22240173	LC6527H-3722
Q704	24130001	GP1U501S
	FL tube	
Q703	212072	8-BT-80GK
	Transistors	
Q705,Q706	2211454, 2211455 or 2213074	2SA1015-Y, 2SA1015-GR or 2SA933-R
	Diodes	
D701,D703	223163	1SS133
D702	224650562 or 224450562	HZ5.6EB2 or MTZ5.6B
	Capacitors	
C701,C704	355744709	47μF, 16V, Elect.
	Switches	
S701,S702	25035548	NPS-111-S510
S706,S707	25035548	NPS-111-S510
S711-S714	25035548	NPS-111-S510
S718-S722	25035548	NPS-111-S510
	Socket	
	2000732	NSAS-4P688
	Holder	
	27190696	FL tube

HEADPHONE AMPLIFIER PC BORAD (NAAF-3544-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
Q451	222652	M5218L
	Capacitors	
C455,C456	354744709	47μF, 16V, Elect.
	Jack	
P402	25045255	YKB21-5009
	Socket	
P403A	2000987	NSAS-14P939

POWER SUPPLY PC BOARD(NAPS-3545-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
C951	3500065A	⚠ DE7150FZ103P AC400V/125V, Capacitor IS
S951	25035558	⚠ NPS-111-L520P, Power switch
	27300601	⚠ SB1925, Cover for C951

SYNCRO. TERMINAL PC BOARD(NAETC-3546-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P751	25045172	HSJ1003-01-020, Terminal
JS703	25050267	NSCT-3P95, Socket

The components identified by mark ⚠ are critical for safety.
Replace only with part number specified.

BLOCK DIAGRAM

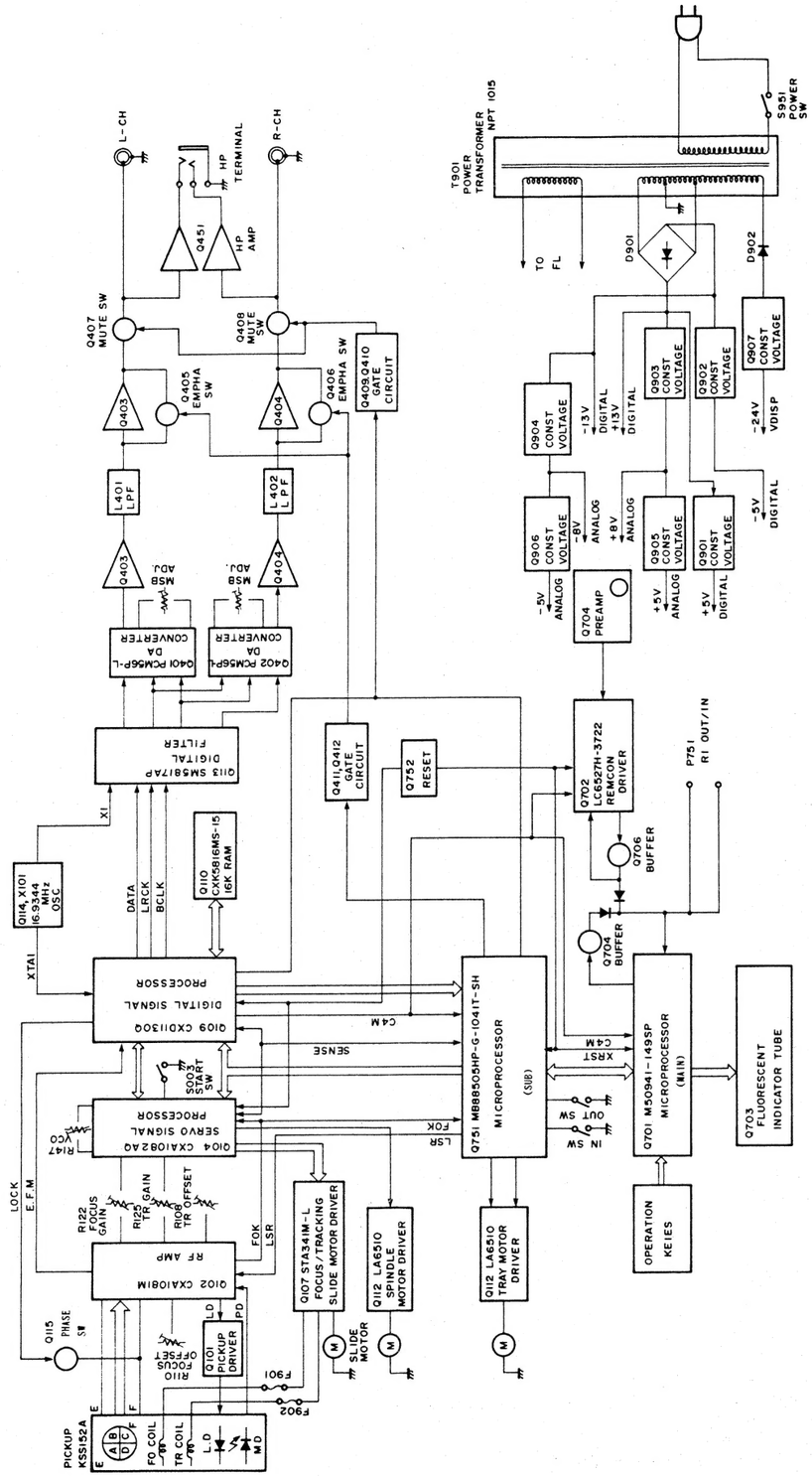


Fig. 47

PACKING VIEW

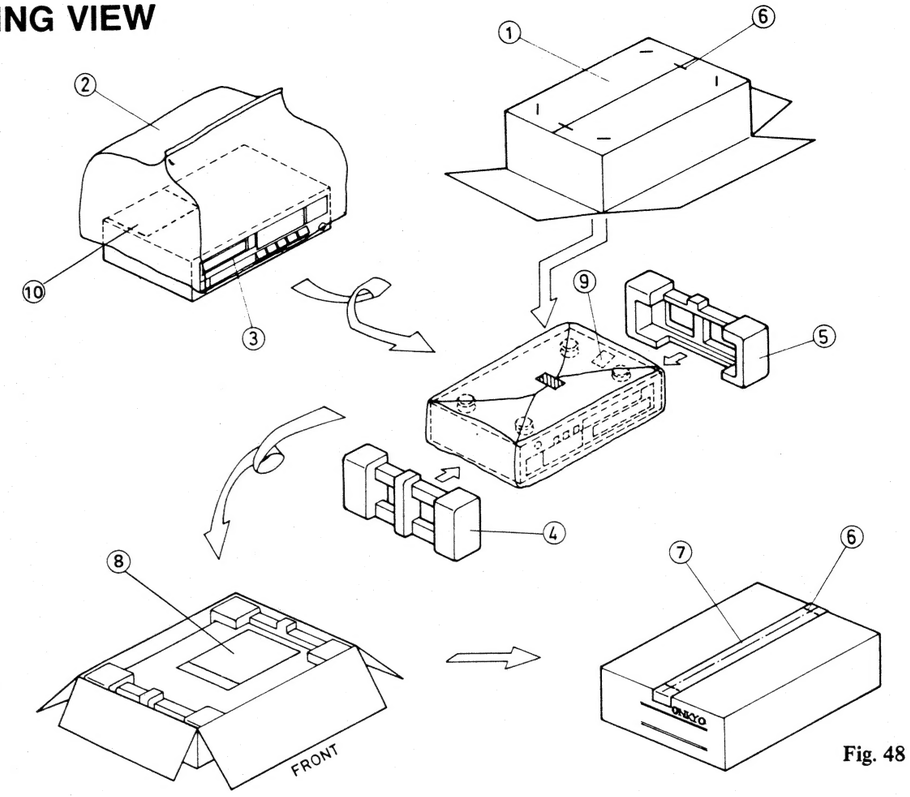


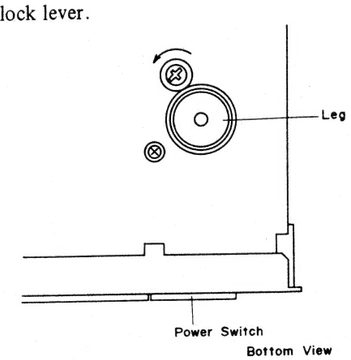
Fig. 48

REF. NO.	PART NO.	DESCRIPTION
1	29051909	Master carton box ⟨B⟩
	29051910	Master carton box⟨S⟩
2	29100037	500 × 650mm, Poly-vinyl bag
3	29095505	Protection sheet for tray panel
4	29091304	Pad R
5	29091303	Pad L
6	282301	Sealing hook
7	260012	50 × 600mm, Damplon tape
8	Accessary bag ass'y	
	2010098A	Connection cord
	2010169	Connection cord (RI)
	24140145	RC-145C, Remote control unit
	3010054	UM-3, Two batteries
	29341408	Instruction manual
	29100097	350 × 250mm, Poly-vinyl bag
	29365020	Warranty card
	29100094A	Poly-uinyl bag for warranty card
9	29361027	Caution label
10	29361011	Label

NOTE: ⟨B⟩: Only Black model
⟨S⟩: Only slilver model

Regarding the lock for transport protection

For the protection of the laser and optical parts during transport, a lock is provided on the bottom surface of the machine. When using the machine, turn the transport lock lever 180° counterclockwise to release the optical pickup. If the lock is not turned completely, the section at the beginning of the recording will be interrupted.
When this symptom occurs, check the position of the lock lever.



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